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August 2009

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Compared

TOUCHSCREEN SMARTPHONES

From the iPhone 3G 3.0 to Acer's amazing double SIM DX900!

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- FreeCommander 2009.02
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- GSpot 2.70a
- IZArc 3.81
- Java Runtime Environment 6
- Linux Kernel 2.6.29.3
- Microsoft .NET Framework 1.1
- Microsoft .NET Framework 2.0
- Microsoft DirectX (November 2008)
- Microsoft WorldWide Telescope
- Mozilla Firefox 3.0.7 for Linux/Mac/Win
- PC Inspector Smart Recovery 4.5
- PDFZilla
- PeerGuardian 2.0 6c
- Process Explorer 11.33
- Process Monitor v2.03
- Real Alternative 1.9
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- Spybot - Search and Destroy 1.6.2.46
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- TestDisk 6.10
- Ubuntu 9.04 Desktop Edition
- Undelete Plus 2.98
- Unlocker 1.8.7
- Universe Sandbox 1.0.424.0
- UnRarX 2.2
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- Vuze 4.1.0.4 for Linux/Mac/Win
- Warhammer 40,000: Dawn of War 2
- XviD 1.2.1
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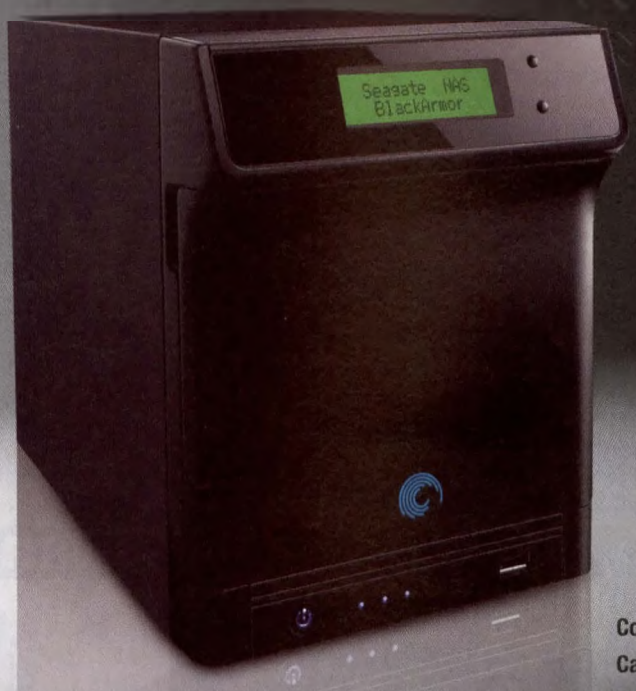

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06 editorial

TONY SARNO

WINDOWS USERS ARE JUST DESPERATE FOR A CONTEMPORARY OS THAT LOOKS GOOD AND WORKS

I think the overwhelmingly positive reaction to Windows 7's Betas and Release Candidate has a lot to do with the fact that Windows users are just desperate for a contemporary OS that looks good and works well on a wide range of hardware. They really want to believe. Here at *APC* we agree that Windows 7 looks the goods, but there is at least one myth about the new OS that needs to be debunked: that it will work on lesser hardware than Vista. Even I fell for this initially, suggesting in the magazine a couple of months ago that a Windows 7 Beta download could be used to revive an old machine, a role once owned by Linux. This was based on reports from early Beta testers who were installing Win 7 on all kinds of hardware (one enthusiast boasted he managed to get it to run on a Pentium II 266MHz CPU, 96MB of RAM and a 4MB graphics card PC!).

But after some thorough testing of Windows 7 RC (which is pretty much the finished product), it's clear that Windows 7 needs at least 2GB of RAM to be happy. Wasn't that Vista's minimum requirement for comfortable operation as well? As our cover story on page 68 shows, Windows 7 will work in 1GB of RAM (the minimum suggested by Microsoft) but that's the equivalent of running a Commodore with a four-cylinder engine: it will get you there but not without some wheezing and grunting. A lot has been made of Windows 7 being perfect for netbooks, most of which currently have 1GB or 512MB of RAM, but the newest netbooks, from Kogan's Agora Pro to BenQ's latest Joybook Lite, are packed with 2GB. That's despite the fact that Microsoft plans to release a stripped-down version of the OS for netbooks. Either way, you'll be able to test Windows 7 for yourself if you haven't already, as next month we'll be featuring the full Windows 7 RC on APC's cover disc .

Still on operating systems, we have the latest Ubuntu on this month's cover disc. If you're one of those Windows users that has always wanted to try Linux but didn't have a spare PC for it, we also have the definitive tutorial, on page 94, on how to run Ubuntu from a USB key. This effectively turns your USB key into another hard disk, from which you can run the OS and store data as you would in a traditional installation. Have fun.

tsarno@acpmagazines.com.au

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03 technotes

THE NEW, THE NEWS & THE QUIRKY VIEWS

Bytesize

Mini news

BLOCK THE HISTORY!

Are there certain sites that you'd prefer didn't appear in your internet history? You need the Firefox add-on HistoryBlock. Unlike "private browsing" mode in some browsers, you don't have to remember to turn it on, and unlike "history cleaners", it won't conspicuously wipe out your entire web history. Put simply, certain sites you browse to will never be recorded in your history. It has even been designed so snoopers can't see what domains you've blocked.

www.tinyurl.com/historyblock

RUN OS X WIDGETS ON WINDOWS

Let's face it: the Vista sidebar hasn't taken off in quite the same way the Mac OS X Dashboard has. Now, thanks to some nifty programming, you can run OS X widgets on your PC. "Kludgets" uses the open-source Webkit engine that drives the Safari browser and OS X Dashboard, allowing OS X widgets to run on Windows.

www.kludgets.com

TOTALLY FREE BURNING

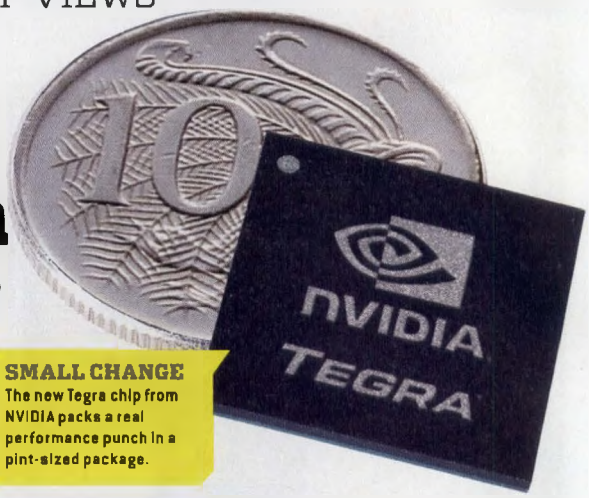
Wow, that took long enough! Microsoft has finally built ISO burning into Windows 7. However, it still can't burn audio CDs or video DVDs. For these, look no further than the excellent Totally Free Burner, which does the lot.

www.tinyurl.com/freeburner

HOT PRODUCT

NVIDIA Tegra

Tegra packs all the essential bits of a PC onto a single chip.



SMALL CHANGE
The new Tegra chip from NVIDIA packs a real performance punch in a pint-sized package.

Intel may have cornered the netbook market to date with its power-sipping Atom chip, but NVIDIA is striking back hard with an all-in-one chip destined for both mobile phones and desktops.

Tegra is described as a "system on a chip" – and indeed, it's almost a whole PC. It has eight processing cores, which include two ARM CPUs, 3D GPU, memory (RAM and Flash), an HD video encoder and decoder, an audio processor and an imaging processor. Traditional I/O functions including USB, HDMI and memory card I/O are also taken care of.

Unlike Atom, it's not Intel x86-compatible, which means it's unlikely we'll ever see Tegra-based systems running Windows. However, this allows the chip to use less than 1W of power – eminently suitable for mobile phones, while still packing astonishing capabilities like 1080p HD video playback. The potential to plug a mobile phone or MP3 player into a TV and play back full-quality HD video can't come soon enough as far as we're concerned!

NVIDIA also says the chip will allow the creation of netbooks with five times the battery life of current models and significantly thinner designs, because a Tegra PC motherboard can be smaller than a stick of notebook RAM.

HOT PRODUCT

Now this is a home server

A new class of powerpack-sized PCs promises to revolutionise home servers.

This unassuming US$99 ($120) beige box, dubbed Pogoplug, is one of the first PCs in a powerpack form factor, running Linux on an ARM processor. It is designed to be ultra-simple to use and promises the perfect hybrid of online storage, NAS boxes and home servers.

You simply plug your hard drive or memory key into its USB port, then the Pogo into your router via Ethernet, and after some simple web-based configuration, you're set up. You can access all your files via the free Pogoplug iPhone app, or on remote PCs using the Windows/Mac/Linux Pogoplug software that shows it as a virtual drive.

When at home on your local network, you can back up to it at high speed (or even by plugging the USB storage directly into your PC for ultra-high-speed transfers).

Pogo handles tricky stuff like monitoring your home broadband connection for IP address changes, so all you need to do to connect to it remotely is remember a Pogoplug.com username and password.

It also has great support for different drive formats – it can share USB drives formatted as NTFS, FAT32, Macintosh HFS+ (non-journalled) and Linux EXT-2/EXT-3. It's based on a reference design by the chipmaker Marvell, called SheevaPlug, and it is expected that many more Linux power-pack style PCs will be released as cheaply as US$49. Currently, Pogoplug is only available in Australia by mail order from the US.

TOP 10
...WORST MOVIE TECH MOMENTS

WIN! Nominate your worst movie technology moments (be specific about movie, actor and what they said or did!) for the chance to win two movie tickets. Apcmag.com/top10.htm

1. **JOHNNY MNEMONIC (1995)**
Keanu Reeves: "I can store 320GB in my brain."

2. **INDEPENDENCE DAY (1996)**
Jeff Goldblum hacks into an alien spaceship via a parallel printer port.

3. **THE LONE GUNMAN (2001)**
They swap out the Octium 3 processor without switching the PC off.

4. **DEMOLITION MAN (1993)**
"Access denied. Override?" If only all computers were that easy.

5. **THE NET (1995)**
Sandra Bullock pronounces "modem" to rhyme with "bottom". Then hacks a PC using drag-n-drop.

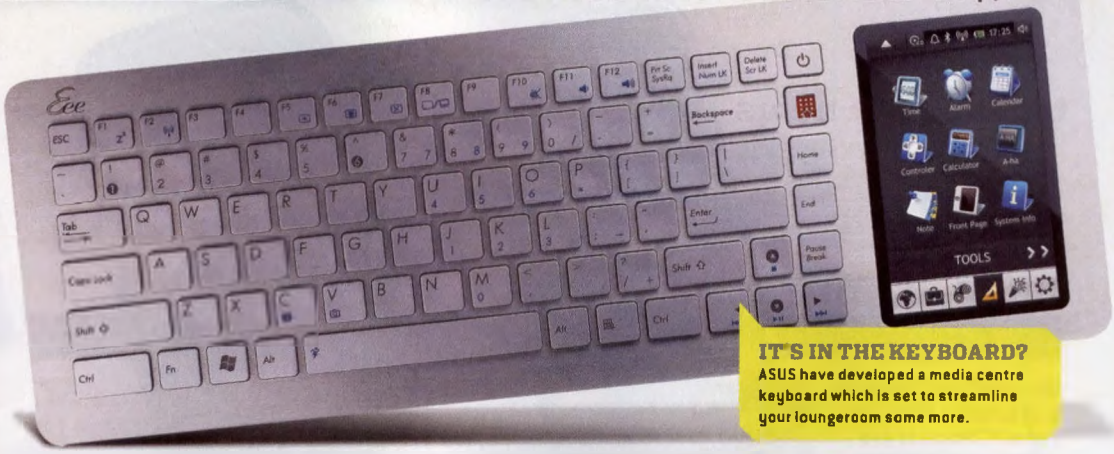
6. **JURASSIC PARK (1993)**
"It's a UNIX system... I know this..." and the girl proceeds to use a 3D flying interface.

7. **WARGAMES (1983)**
Matthew Broderick defeats a military supercomputer by forcing it to play chess until it learns the meaning of stalemate.

8. **GOLDENEYE (1995)**
All the computers whether Mac or PC, were running IBM OS/2 Warp.

9. **SWORDFISH (2001)**
Hugh Jackman constructs computer viruses using a 3D modelling program.

10. **FIREWALL (2006)**
Harrison Ford connects an iPod to a scanner which he sticky tapes to a computer screen to steal information.



IT'S IN THE KEYBOARD?
ASUS have developed a media centre keyboard which is set to streamline your loungeroom some more.

Eee HOME THEATRE

First, ASUS made notebooks cheap. Now, they're packing a home theatre PC into a keyboard.

There's no mistaking it, this is an eye-catching keyboard, complete with Apple-esque styling and a built-in touch screen. But what's that you say? Is that Windows XP running on the touchscreen? And is that a wireless HDMI transmitter? And is that a USB port? Why, "yes" is the answer, as it happens, to all three.

ASUS is pitching its forthcoming keyboard as the ultimate home theatre PC. Inside, the gizzards are of a netbook, but ASUS has packed some true innovation into it, like the wireless HDMI, which will mean you don't need to perch it inconveniently next to the TV in order to play back your video library.

It'll also pack Wi-Fi, Bluetooth and wired HDMI in the very likely case that the wireless version isn't entirely reliable. All that said, while it's a product with a lot of promise, we're yet to see the wireless HDMI actually demonstrated yet, and we don't know what sort of graphics grunt it'll have to take the video decoding work off the puny Atom CPU. Doesn't mean we're not slobbering all over our keyboards right now at the thought of owning one.

ASUS Australia tells us it'll be out in the next three to six months.

Yarrr, pirates in parliament

The Pirate Party has won seats in Swedish Parliament, and Australia's in its focus.

It seems nearly 10 per cent of Swedes are so sick of being nagged and surveilled by recording and movie-making companies that they've actually voted pirates into parliament.

The Pirate Party won 7.13% of votes in the 2009 European Parliament Elections, which is one seat, possibly two if some political reforms go into effect.

Ironically, police raids on popular Torrent trackers like The Pirate Bay, housed in Sweden, served to rally public support for the party.

The party is lobbying for all non-commercial copying to be freed of copyright shackles, copyright to be limited to five years after publication, and DRM banned. It also wants the patent system to be scrapped and stronger protections on individual privacy, especially around internet use (can't imagine why.)

The soaring success of the Pirate Party in Sweden has seen a flurry of similar political parties formed around the world, including one in Australia. It's still forming and is not yet a registered political party, but you can visit its web site at **http://ppau.info**.

AHOY ME HEARTY
Don't ye be lily-livered, vote one Pirate Party, or we'll keelhaul ye o'er Davey Jones' locker.

TRIBAL COUNCIL...

APCMAG.COM ASKED
Will you buy a digital radio?

YOU REPLIED
✓ 23% ✗ 24% ? 53%

APCMAG.COM ASKED
Do you blame dumb customers for the death spiral of Linux on netbooks?

YOU REPLIED
✓ 32% ✗ 46% ? 20%

HEAD2HEAD

We pitted the iPhone 3G S against the Palm Pre and HTC Magic to see which smartphone rules the roost.

	IPHONE 3G S	PALM PRE	HTC MAGIC
Operating system	Apple's BSD-based iPhone OS 3.0 fixes most gripes with the existing OS, with copy+paste, using the phone as a laptop modem and more.	Palm's Linux-based WebOS can run multiple apps, unlike the iPhone. Apps are easy to develop, as they're built in standard web languages.	Google's Linux-based Android OS is fully open-source and thus not subject to the lame carrier-driven limitations of so many phone OSs.
Hardware	600MHz processor, capacitive 320 x 480 touchscreen, 3-megapixel camera with video recording, 135g, 16 or 32GB non-expandable storage, SHINY!	600MHz processor, 320 x 480 capacitive multitouch screen, 3-megapixel camera, 135g, 8GB non-expandable storage, KEYBOARD!	528MHz processor, 320 x 480 capacitive touchscreen, 3.2-megapixel camera, 118 5g, BYO MICRO SD CARD!
Killer feature	It's a full iPod plus pocket computer with over 50,000 apps available.	"Synergy", which syncs your contact and calendar with cloud services. A web-based app platform. Wireless recharging.	Fully open-source operating system, plus flawless Google (Gmail, Calendar, etc.) integration.
Biggest downer	Average battery life and being forced to pay three times the price for every iPhone-compatible accessory.	8GB non-expandable storage. Cramped keyboard. And, for now, a paucity of apps compared to iPhone.	Multimedia: the Android OS doesn't come with a video player (there are third party ones). No headphone port: you have to buy an adaptor. Lame.
The verdict	An outstanding phone, with many bits fixed. Not a massive jump from the iPhone 3G, but more of a good thing.	We love that Palm has risen from the ashes with a modern mobile OS. It still has a way to go to catch up though.	If you love Google stuff and want the best over- the-air integration, buy this. There will be sexier handsets to come.

TOM TOM COMES TO iPHONE

Finally, decent turn-by-turn spoken navigation on iPhone.

Without question, TomTom is the best GPS from an ease-of-use perspective, and coupling it with the brilliant touchscreen of the iPhone sounds like the perfect combo.

TomTom will be providing a special windscreen mount for the iPhone 3G that allows it to be used in either landscape or portrait orientation, while simultaneously charging the iPhone via a USB car charger. It also provides "enhanced GPS reception" for the iPhone and has a speaker in it to provide loud and clear spoken instructions.

TomTom hasn't released pricing for the TomTom app yet, but don't expect it to be dramatically cheaper than buying a standalone unit, since full maps will still be included with the download, and they account for the vast majority of the cost. With this approach, the app won't be relying on dodgy mobile-network streamed maps which cut out in unfamiliar areas.

NUMBER CRUNCHING

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54.9%
THE PERCENTAGE OF TWITTER USERS WHO HAVE NEVER ACTUALLY TWEETED EVEN ONCE.

THE (A)PC REVOLUTION
AUG / 1986

20 YEARS BEFORE OPTIMUS MAXIMUS...

"In nightmares, people have suggested a magic computer keyboard to me, where it doesn't say 'qwerty', but every key has its own, computer-generated legend on it. At the touch of a bug, they all change. This keyboard is that nightmare come to life. Every keycap has a little LCD embedded into it, and the computer can tell it what it should look like. My own computers do such horrible things to ordinary keyboards that I dare not imagine what they'd do to these innocent liquid crystals. It's only available in Asia, thank goodness. - Guy Kewney"

THE FIRST NETBOOK?

Like many people, I have a credit-card-sized calculator that I carry in my top pocket. Most of the time I never know it's there, but when the going gets tough, out it comes and makes itself useful. MS-DOS machines are gradually attaining the same level of convenience. Typically (of laptops), the keyboard on this is cramped, though.

FLIP OUT EVERYTHING
A foldable notebook? Now we've seen everything. But that's exactly what an MIT student is developing right now.

Is it a phone, laptop or netbook?

The amazing Dragonfly MID folds in four and has a full QWERTY keyboard.

This is pretty much the coolest notebook design we've seen for a very long time, but can it really be manufactured? Not yet – but soon is the promise.

The Dragonfly is pitched as a mobile internet device (MID) and packs an Intel Moorestown CPU running Windows XP on a dual-display when fully folded out. If it's only half folded out, it works as a flip phone (albeit a chunky one), and in its fully folded up state, it's a PDA-type thingummybob.

Its maker, Edward Bullister, an MIT graduate with a Ph.D, admits he will have to wait for double-sided LCD displays to be manufactured (let alone the cool transparent glass LCD displays in his mockup), and also doesn't yet know how he's going to deliver on his goal of all-day battery life for the display-intensive device.

But hey, we like where he's going with this and wish him all the very best of meeting his end-of-the-year shipping target date. On the other hand, we could just go out and buy a Sony VAIO P notebook, which doesn't have fold-in-four street cred but offers a similar size form factor ready for you to slip into your manbag. Wait, did we just say that?

Mustknow

Essential Knowledge

THE TECH LOWDOWN ON DIGITAL RADIO

Near CD-quality radio has arrived in Australia, with it broadcasting in Sydney, Melbourne, Brisbane, Perth and Adelaide. The DAB+ signal is broadcast in streamed AAC+ format, with the same Reed-Solomon error correction used on optical discs to cope with scratches.

It allows better-than-FM-quality sound in a small amount of bandwidth – just 48Kbit/s per station. Better sound quality alone isn't going to make anyone rush out to buy a new radio – but other features like song titles displayed on the radio's screen, album artwork on radios with colour displays and the ability to pause and rewind live radio are pretty cool.

Don't be tempted to buy a cheap DAB radio overseas though – the DAB format broadcasts in MPEG-2 and is completely incompatible with Australia's far superior DAB+ format.

Topsite

URL of the month

NOW GOOGLE'S GOT MOVIE TIMES

Is there anything Google can't do? Now you can search for movie times directly in Google. Just search for "movie times near [your suburb name]", eg. "movie times near Sydney, NSW". Alternatively, you can search for a specific movie, eg. "Terminator Salvation near Sydney." While we're talking movies, Greater Union and Hoyts now have mobile phone ticketing, so you can buy your tickets online while you're out at dinner. Just hit up ***m.greaterunion.com.au*** or ***m.hoyts.com.au.***

SMARTPHONE APP STORES

The software battle is on, as every major smartphone maker copies Apple's App Store, writes **David Flynn**.

In the pre-App Store era, even the smartest of smartphones relied on their owners hunting down software through a hodge-podge of web sites, clumsily downloading what they hoped would be the correct version. The companies making the phone or its OS played little or no part in this, apart from distributing SDKs to developers.

Apple then changed the rules — opening the famed App Store that created a massive opportunity for developers to sell software and for buyers to finally get decent apps for their mobiles. Apple wasn't driven by vision so much as the fear of having its phones jail-broken by users who wanted to run third-party applications based on the Cocoa foundations of the iPhone OS's Mac OS X parent. Until then, Apple had demanded that all third-party apps be written using web-based AJAX technology — in effect, creating web pages rather than real programs. Developers eager to mine the iPhone ecosystem reacted with outrage.

Apple shifted its strategy and allowed developers to access Cocoa through the iPhone SDK, creating a single controlled marketplace for iPhone apps. Add an adaptable dash of marketing genius and the iPhone App Store was born. Now competitors' app stores have become one of the main drivers in the market and a must-have for every smartphone player.

THE ORIGINAL
And we'd say it's still the best app store out there.

iPHONE APP STORE

Apple's iPhone App Store boasts a slick and fun UI with elegant integration into iTunes as both the desktop client and the account for paid apps.

The pricing is right. Once you get past the legion of free apps, most of the commercial apps sell for under US$5, and the majority of those sit in the 'sweet spot' of US99c-US$1.99.

That said, the iPhone App Store comes with some oh-so-Apple caveats. While there are upwards of 35,000 programs on the menu, you only get those which Apple approves — leaving room for all manner of subjective interference and kowtowing to partner carriers. Nor will you find programs that compete with Apple's own offspring, such as a different web browser, email program or music and video player.

And you won't find iPhone apps *anywhere* but the App Store — unlike all of its competitors, which allow downloading from web sites and even competing online stores.

ANDROID MARKET

Local owners of the HTC Dream and HTC Magic are already able to dive into Google's Android Market. However, they're limited to downloading free apps because the Google Checkout service, which provides the mechanism for paid programs, isn't available in Oz for this store.

With some 2,300 apps on its shelves, Android Market is slowly gathering momentum. This is no doubt helped by Google's open policy compared to Apple's lockdown. Google doesn't exercise any right of approval over the Android Market and, as with all app stores bar the iPhone's, allows developers to offer programs through alternative channels. This provides a canny workaround for apps that Google is prevented from listing due to restrictions imposed by a carrier.

While Google can't list a tethering app that turns your Android phone into a 3G wireless USB modem for your laptop, for example, you can simply fetch the .APK app file from another site.

Working against Android Market is the lack of a desktop or even browser-based client, although this is less of a barrier to the propeller-head buyers of Google phones.

EXPANDING SHELVES
Those with Android-based phones are finding the free apps are growing. With any luck, paid for apps will arrive soon.

BUSINESS APPS
Being a work-focused smartphone, the BlackBerry App World isn't as much fun as the others.

BLACKBERRY APP WORLD

RIM launched its BlackBerry App World in April but at the time of writing it was available only to 'CrackBerry' fans in North America and the UK. The company declined to comment on the timetable to extend the service to Australia.

Perhaps reflecting the BlackBerry's foundations as a business phone, the lean selection of apps places less emphasis on fun and pure whimsy. It's all a bit buttoned-down. Indeed, App World as a whole lacks the polish and slickness of the iPhone App Store — it's a solid but stolid service.

Featured apps take up a full screen as you rotate through what RIM calls the 'Front Page Carousel', which doesn't encourage casual browsing and app discovery in the same manner as the iPhone. Nor is there a desktop client such as iTunes through which you can browse, download and then sideload apps onto your BlackBerry via a USB cable.

One of RIM's unique features is the My World page, which lists the software you've downloaded so you can easily remove and reinstall it as well as transfer purchased applications to a new BlackBerry.

While there are some free apps in every category, RIM has set the minimum for paid apps at US$2.99, enough to make you think twice about buying even the cheapest app. The only means of buying any application is with a PayPal account.

NOKIA OVI STORE

The Ovi Store is available on all Nokia phones using the Symbian S40 and S60 OSs (including most E-series and N-series handsets). It's the only app store to offer more than just apps. Ringtones, wallpapers and podcasts can be downloaded directly onto the phone or sideloaded from a browser-based view of the Ovi Store.

If your Nokia phone has an inbuilt GPS receiver, the Ovi Store can recommend content relevant to your location. Step off a flight to Tokyo and you'll see a set of recommended apps such as quick language lessons, currency converters and guides to the local public transport system, restaurants and bars.

Billing is done through your credit card or your operator. But its biggest disadvantage is its pricing. Many music-based ringtones cost $5 — it's cheaper to buy the entire song through an online music service. Many other apps cost $10+, and are much cheaper at the iPhone App Store.

APPS AND MORE
Nokia Ovi Store is the only app store where you'll find more than just apps. It's a bit pricey though.

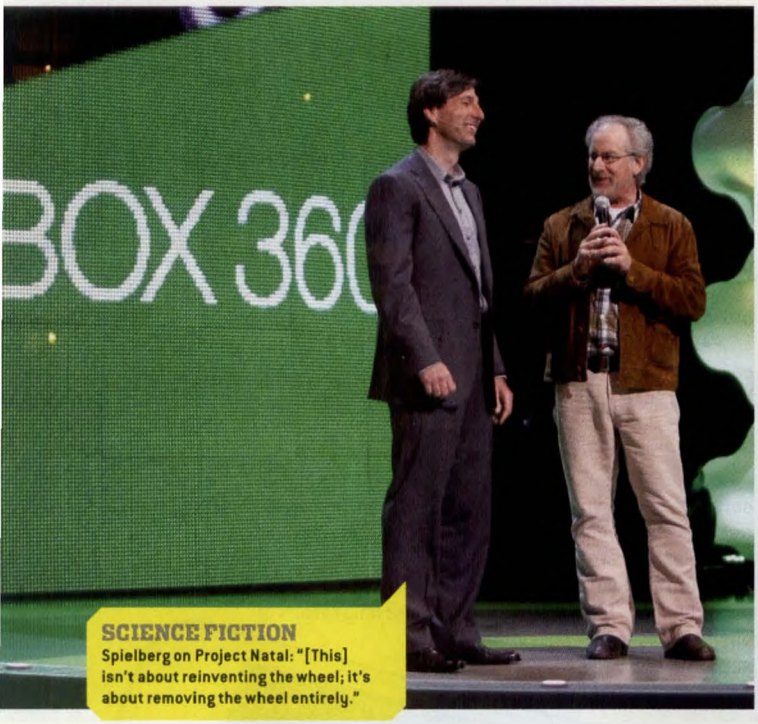
WINDOWS MARKETPLACE

Less is known about Microsoft's Windows Marketplace for Mobile, which is expected to go live in the third quarter of this year.

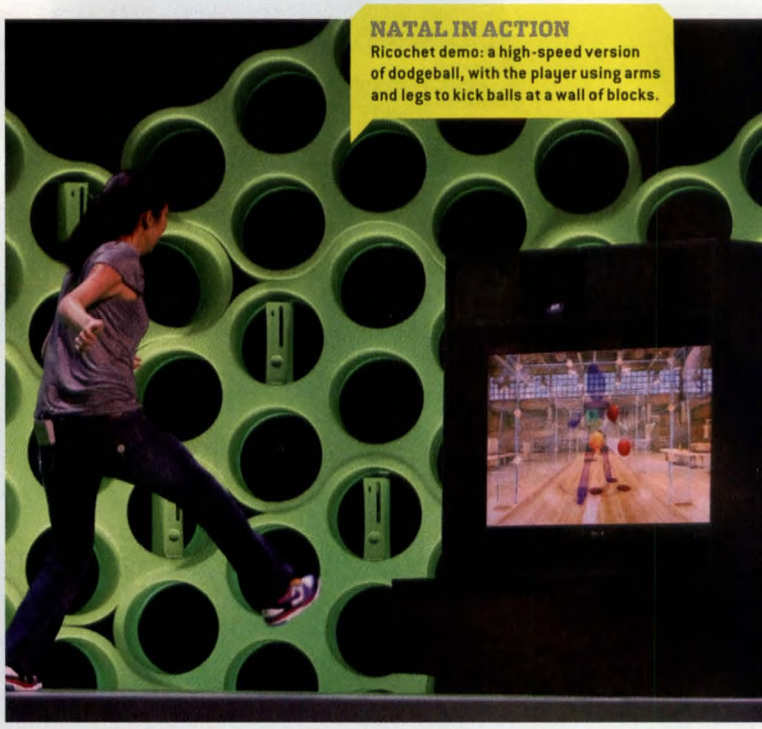
It will be available for phones running Windows Mobile 6.x, including the new WinMo 6.5 handsets we'll see towards the end of 2009. However, Microsoft hasn't advised if there will also be a desktop client.

Microsoft says that payments will be accepted through credit cards as well as carrier billing. In lieu of supporting try-before-you-buy software, paid apps will come with a 24-hour refund policy.

Telephone carriers like Telstra and Vodafone will be allowed to create branded sections of the store to sell their own apps and services such GPS-based routing and navigation. And there's an extensive list of what type of apps *won't* be permitted on WMM. This includes programs that change the default browser, search client or media player from the Microsoft-sanctified settings, VoIP apps that run over a mobile network (although Wi-Fi is permitted), and apps which promote or even link to alternative web sites for downloading WinMo software. APC



SCIENCE FICTION
Spielberg on Project Natal: "[This] isn't about reinventing the wheel; it's about removing the wheel entirely."



NATAL IN ACTION
Ricochet demo: a high-speed version of dodgeball, with the player using arms and legs to kick balls at a wall of blocks.

GAZUMPING Wii's CONTROL

Nintendo's Wii, with its innovative motion game control, has now inspired the rest of the industry to take the concept further, reports **Bennett Ring**.

In less than three years, the Nintendo Wii has propelled Nintendo far into the lead as the number one game console maker, leaving Sony and Microsoft scratching their heads. The Wii's astonishing success has been based on a games controller built for non-gamers. Nintendo realised that the increasing complexity of game controllers was a massive barrier for people who didn't already game, so it chose to develop a game controller that used motion as an input. Meanwhile Sony released a PS3 controller with thirteen buttons, two analogue control sticks and a direction pad.

Nintendo's gamble paid off — by simplifying the controls on the Wii, it attracted a range of people who'd never picked up a control pad before. Women and seniors now make up a large proportion of the Wii's user base. With over 50 million Wiis currently in the market, Microsoft and Sony have inevitably taken notice of this success. At this year's E3, both companies unveiled their own versions of motion control. We were there to see whether they had what it takes to beat Nintendo at its own game.

MICROSOFT — PROJECT NATAL

As Steven Spielberg stated at the first live demonstration of Project Natal, this device "isn't about reinventing the wheel; it's about removing the wheel entirely." A small bar sits under the user's screen, and does away with controllers entirely. Instead, it reads the entire body as a form of input. Both arm and leg positions are measured, and it's even got a microphone for voice control.

There's some extremely high-tech wizardry going on within Natal's slick exterior. An RGB camera is paired up with a depth sensor to see in full 3D. This depth sensor is comprised of an infra-red projector, combined with a monochrome CMOS sensor, and even works in the dark. According to technical information released by Microsoft, this sensor can detect when the user is sitting on a couch, as well as notice other obstacles in the room — and then remove them from the scene. Project Natal's camera is so accurate that it can even identify different faces, as well as whether the face is smiling or frowning. The microphone includes acoustic source localisation, as well as ambient noise suppression, allowing it to pick out voices above the soundtrack of a game.

There are obvious gaming applications for Project Natal, but it also allows the user to

SONY MOTION CONTROLLER

To put it bluntly, Sony's motion controller is a direct copy of the Wii's remote. The Sony wand looks just like a Wii remote, and operates almost identically, using accelerometers to gauge movement. It has one major improvement though, which looks like a ping pong ball on top of the controller. The Playstation Eye (which is just a PS3 webcam) tracks this glowing ball, using it to provide far greater accuracy than accelerometers alone can deliver. According to Sony, it provides true 1:1 movement. That is, every motion of the real Sony wand is mapped exactly to the in-game character's movements. This differs to the Wii Remote, which uses gross movement to create an approximation of the same movement in-game.

The accuracy of the wand is purported to be finer than one millimetre, allowing for extremely accurate in-game motion. We've witnessed the device in action across several demonstrations, the most impressive of which was a sword fighting scene. The extreme accuracy of the device allowed the sword wielder to target individual ribs on the opposing swordsman, and to even tickle the enemy. The accuracy is substantially more than the Wii's Remote, but whether gamers will want to shell out for the proprietary wand, plus the necessary Eye camera, will only be determined when it releases in Autumn 2010.

TOP SECRET
Sony is keeping the Wand under wraps, so this is not the final design. Expect something different when it is finally released nex year.

NINTENDO MOTION PLUS

Not to be outdone, Nintendo has updated its own motion controls with the MotionPlus. This matchbox-sized device plugs into the base of the Wii remote and provides additional accuracy to the device. While Nintendo claims it provides a true 1:1 response, our recent test of a working unit suggests that it's not in the same league of accuracy as the Sony wand. Another device which Nintendo plans to release in the near future is the Wii Vitality Sensor. The user slips a finger into the device, which then measures the user's heart rate. At the time of unveiling, Nintendo couldn't tell us of any games that it will work with, but there's no doubt that it will fit in nicely with Nintendo's fitness series, Wii Fit.

navigate the 360's media functionality without a control pad. Simply say hello to the 360 to get it to wake up, then use arm motions to navigate through the 360's dashboard. It's all very *Minority Report*, and would be hard to believe if we hadn't seen it in action.

Our first demo consisted of a human controlling their Xbox 360 avatar on-screen. While occasionally the avatar would appear to glitch and contort crazily, it generally matched the human's movements very well. Bear in mind this demo, and the ones that followed, took place on a giant stage with no background. Not exactly the most optimal conditions for picking out the shape of the human body.

The next demo was a sporting game, Ricochet. A high-speed version of dodgeball, the human controller had to use her arms and legs to kick balls, knocking down a wall of blocks. It was a little too fast-paced to determine how accurate Project Natal really was.

However, the most impressive demonstration was Paint Party. Using body movements, the human controller painted a very basic scene. It was only when the game went into "Stencil" mode that we could see how clearly Project Natal detects the human shape. Against the backdrop of a busy stage, Project Natal clearly picked out the outline of the two humans in front of it, projecting just their outlines on the screen.

Finally, Project Natal was used as the interface to interact with an AI boy called Milo. According to the developer behind Milo, Peter Molyneux, Milo can recognise the person interacting with him. He'll then strike up a conversation with the person, provided the conversation sticks to a very narrow range of topics. To be honest, this demonstration felt like smoke and mirrors to us — even NASA supercomputers don't have the power to replicate a human conversation, so there's no way a gaming console can do it. Still, the Milo demonstration showed that Natal could detect when somebody was laughing or yelling, and also tracked where the user was looking.

If Microsoft can deliver on Project Natal's promises, this could be the biggest leap forward for video gaming since the first home console was landed in living rooms. While the demos left us optimistic, we're still retaining some healthy scepticism until we get our first hands-on of the product. Or should that be, our first hands-off? EDGE

16 epinions
HAVE YOUR SAY

epinions@acpmagazines.com.au

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THIS ISSUE'S WINNER

Letter of the month

Dr Allan wins a TP-Link Wireless N Router and Adapter bundle worth over $200.

SLIP IT IN

On a recent visit to Sydney I took the opportunity to pick up a Samsung 2233SW 22in LCD monitor.

Late that night after arriving home I picked up *APC* for a spot of bedtime reading and read Nick Race's review of the Samsung 2233.

I was a little concerned that he had only given it 5/10, but less so when he explained the poor rating was mainly due to the curious rubber mounting of the stand.

The next morning at work I anxiously unpacked my new monitor and, yes, it had the same rubber socket on the base of the monitor that Nick had earlier described.

It was also apparent from my first attempt to insert the stand that it was not going to be easy.

But then in a flash of genius, I went into my consulting room and returned with a tube of KY!

After a generous application the stand slipped in like the proverbial.

So next time you are faced with assembling a Samsung monitor, just remember Nick – there is always time for lube!

Dr Allan Kirkpatrick
Cardiff, NSW

Ink is again a hotly contested issue, when exactly will the manufacturers stop charging through the nose for cartridges?

PRINTER ANGST

I sent my Epson R800 in for repairs (banding on glossy photo printing) to Plus Printer Repairs at Seven Hills, NSW. They did the best they could to clear the blockages in some of the colours in the printhead but were not able to fix the problem completely, stating that the printhead was at fault and that it would need to be replaced.

The cost of the printhead plus labour would be more expensive than purchasing a new R800, and I had to pay a service charge for the privilege of finding this out.

This I find totally unacceptable!

I cannot believe that a part which is more likely to fail because of the nature of inkjet printing would be priced by Epson such that an otherwise good printer has to be junked. What a waste of resources!

This is akin to buying a new car and having to replace that car with a new one once the tyres wear out, because the cost to replace the tyres is more than the cost of a new car!

If that is the way Epson designs its printers and then charges its customers with such ludicrous prices for spare parts then Epson needa to take a hard look at itself.

Mike Maldon
Strathfield, NSW

WHAT'S IN THAT INK?

When will printer makers wake up to the fact that their policy of selling printers cheap only to get their money back through ink is alienating their customers? I have a Lexmark MFC from 2007. Good machine, but when it recently ran out of ink I went to Officeworks to buy replacement cartridges. They told me they'd run out of the ordinary cartridges and only had high-capacity ones. I had to pick myself up off the floor when told the two tiny cartridges would cost me $110. I mean, high capacity or not, what's in that ink? Crushed diamonds? If I were to fill those cartridges with Penfolds Grange they'd still come out cheaper. This policy by printer manufacturers is increasingly making me shy away from printing, and I now tell all my customers that since we're "green", paperwork and invoices now go out as PDFs only. It's saving me a fortune.

Peter Smith
Blacktown, NSW

FORT KNOX LEAKS

I was dismayed by the quality of the "20 steps to a Fort Knox PC" article in the July issue. Mr Thompson refers to "WMA" as a wireless encryption standard in points 7 and 14. This should read WPA or WPA2. Better yet, it could explain that WPA allows either TKIP or AES encryption, while WPA2 (or IEEE 802.11i) mandates AES encryption. Currently, both TKIP or AES are safe for SOHO environments.

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GET WINDOW 7 RC, VISTA SP2 AND OFFICE SP2

In the September edition of APC, we bring you 4GBs worth of essential Microsoft software. There's Windows 7 Release Candidate, a code-complete version of Microsoft's next operating system that will work until March 2010. For Vista users, Service Pack 2 brings a raft of hotfixes and improvements, while Office 2007 Service Pack 2, includes major performance enhancements for Outlook. APC will be the only magazine to bring you all three.

While AES is theoretically more secure, and TKIP has some abstract vulnerabilities, there are no tools in the wild for breaking either. If you are using Pre-shared Key (PSK) mode (and most of us are) then a dictionary attack is still your greatest vulnerability; use long passphrases.

More worrying is point 20. Mr Thompson suggests setting up a GNU/Linux IDS. That's a fantastic idea, except the software he recommends (Tripwire) will not give you any warning if "your network is being probed".

Tripwire is a host-based IDS, not a network IDS. This means it monitors only the computer it is installed on. Worse still, the URL in the article is for the commercial version, not the open source version. The free version, by the way, has not been updated in two years.

One open source example of a network IDS is the Basic Analysis and Security Engine (BASE). Placed properly within a network, and regularly fed new SNORT rules, it can detect or even prevent attacks.

Nicholas Boling
Holder, ACT

LINUX CONSPIRACY

I am concerned by the amount of space reserved in APC for articles, letters and how-to's relating to Linux. I am no PC novice, I studied IT at uni, and my Media Center PC (Windows XP + 3 extenders) is my hobby and pride and joy; however, I gave up on Linux years ago. In the end, the time spent setting up, getting drivers working, trying to play music, trawling through forums wasted more time than actually using the system.

Reading the current *APC* How-to's it seems, not much has changed. A recent request for information on how to use a USB drive like Vista's Readyboost system involved numerous long winded commands be typed in.

When will the Linux disciples get it! At least 95% of the computer-using population do get it (89% Windows + 6% Apple). The average user just wants a PC that does what they want out of the box, and when one of these average users try Linux, it is too hard to do just that.

Google the usage of OSs on the web and you will find that over the last six years the usage of Linux has grown from around 2% to around 4%. It begs the question, why even have the how-to's section for Linux? I suspect 99% of the 4% of Linux users know exactly how to find the answers they require by trawling the user forums they already subscribe to.

Personally, I am now interested in trying out a Mac.

Justin Wild
Table Top, NSW

apc

EDITORIAL
Editor Tony Sarno *tsarno@acpmagazines.com.au*
Deputy Editor Melanie Pike *mjpike@acpmagazines.com.au*
News/Online Editor Dan Warne *dwarne@acpmagazines.com.au*
Technical Editor Nick Race *nrace@acpmagazines.com.au*
DVD/Chip Chat Editor Peter Dockrill *pdockrill@acpmagazines.com.a*
Contributors James Bannan; Shane Baxter; Mary Branscombe; Anthony Caruana; John Chang; Troy Coleman; Peter Dockrill; David Flynn; David Hague; Karl Hodge; Peter McGann; Ashwin Mehra; Ashton Mills; Antonio Morris; Ash Nallawalla; David Neiger; Jenneth Orantia; Bennett Ring; Nick Ross; Leigh D. Stark; Mike Williams; Stephen Withers; Christopher Zammit.

Editorial & Marketing Coordinator Helen Chen
hchen@acpmagazines.com.au

DESIGN
Art Director Chris Zammit
Designer Martin Vine
Photography Chris Zammit, Martin Vine, Getty Images

PRODUCTION
Sub-Editors Melanie Pike, Peter Dockrill
Production Controller Corinne Whitsun-Jones

MULTIMEDIA
DVD Editor Peter Dockrill

ADVERTISING
National Sales Manager Fleur Porter
fporter@acpmagazines.com.au (02) 9288 9147
Sales Executive Rhyl Heavener
rheavener@acpmagazines.com.au (02) 8268 4662
Account Enquiries Vic Peter Flanagan (03) 9822 5188
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MARKETING
Marketing Brand Manager Kat Galang

CONTACTING US
Email *apc@acpmagazines.com.au* **Web** www.apcmag.com
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Postal PO Box 4088, Sydney NSW 2001
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SYNDICATION ENQUIRIES
London John Slater
Phone 44 20 7812 6527 **email** *jslater@acpuk.com*
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enduser

FROM THE READERS OF APC

apcenduser@acpmagazines.com.au

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Engineering Genius

APC reader Alvaro Hui, from Templestowe Lower, Victoria, used to have a neigbour who was a highly educated engineer with multiple degrees, masters and Ph.Ds. "One night, he came to me with his walkie talkie," says Alvaro. "He told me it had been working fine the whole day but had stopped working a few minutes ago. I told him, it must be the battery. He said he had thought of that and had replaced the 9V battery with a brand-new one. So, I opened the battery compartment to have a look. To my amusement, there was no question he had replaced the battery with a brand new one — the battery was still in its plastic wrap." Alvaro reassures us that his neighbour was not an electrical or computer engineer. That's good, but it still leaves structural engineer or aircraft engineer as possibilities.

EXCUSES EXPOSED

Peter Taylor has been repairing computers since 1985 and over the years has compiled a list of excuses offered by people whose PCs were infested with porn malware. "It's amazing how many nasties can land on your PC if you're surfing Russian Lolita sites without anti-malware software," Taylor says. "My policy is to be upfront with my customers. I tell them that if they're going to surf porn sites, they need to make sure their PC is fully protected. But the funniest thing is, few of them ever want to own up to it. They come up with the silliest excuses instead."

Taylor recalls some of them. "Quite a few say something like, 'There's porn on my computer? Are you kidding me? Wow, it must have been put there by a virus. Those virus writers will stop at nothing.'"

What anyone offering this excuse doesn't realise is that it's the most popular excuse used by people arrested for having child porn on their PCs, says Taylor.

Another user, when confronted by Taylor with evidence that he'd been to porno sites, looked Taylor in the eye, dropped his voice to a whisper and said he was so disgusted by porn he had decided to research it to identify and "expose" the pornographers. Taylor says: "I had a bit of a chuckle to myself about that one; apart from the bad choice of words, he only succeeded in exposing himself!"

Another user told Taylor he was researching e-commerce sites. "He said it was a horrible part of his job, having to sign up to various porn sites with his credit card to see how their e-commerce systems worked. Porn sites are always ahead of the pack when it comes to innovation, and he needed to stay across what they were doing. That was a good one, I thought."

Taylor's favourite was the user who told him the porn malware ended up on his computer because he was using Google to get more information on 'anal' cancer and had unwittingly clicked on some links to undesirable web sites, which then had proceeded to flood his PC with their pop-ups. "I told him that next time a better search term would be 'prostate'," says Taylor.

IT'S NOT MINE
"I swear I don't surf porn sites... I just like computing in my underwear."

WINNERS GET THIS

MAGIX Movie Edit Pro 15 is a top-selling video editing program and the perfect solution for beginners to ambitious users. Featuring effortless video capture, straightforward editing, spectacular 3D effects, a large selection of titles and fades, brilliant dubbing, 32 tracks, and the result burned to an interactive CD/DVD or exported to the internet or a mobile player. With MAGIX Movie Edit Pro 15 you can transform your best video recordings into exciting theatre-quality films, including background music, animated transitions, text and special effects – in just three steps! For more information go to **www.qvsoftware.com.au**. Valued at $109.95.

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SMART TECHNOLOGY THAT COMFORTS YOUR EYES

The entertainment world today is wonderfully digital. The new LG W53 monitor moves beyond merely delivering you clear images and vivid video detail. The result is state-of-the-art engineering that features an exclusive Auto Bright system which automatically optimizes brightness and other picture settings based on the ambient light in the room and the content being viewed. Enjoy more. Enjoy longer. Your eyes will thank you.

W53

www.lge.com.au

Toshiba recommends Windows Vista® Business.

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intel Centrino 2 vPro inside

Protect.
Manage.

Think mobility think Toshiba

Portégé R600

The science of movement takes many sophisticated forms. Here are two: Toshiba's fully-featured ultra-thin, ultra-light Portégé R600 in a sleek magnesium chassis with an optional high speed SSD; and Toshiba's Tecra R10, perfectly designed for the challenges of business with its rugged yet lightweight design and advanced security features.

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TOSHIBA
Leading Innovation >>>

watchdog

KEEPING AN EYE ON VENDORS!

watchdog@acpmagazines.com.au

Has an IT vendor or telco stuffed you around? Let us know about it and we'll chase them for a solution on your behalf. Letters sent to **watchdog@acpmagazines.com.au** must include the writer's full name, street address, suburb, state and phone number to be considered for print publication (please also include details such as invoice numbers and people you've spoken to). Address and phone details will not be published. All correspondance becomes the property of *APC* and is subject to editing.

Dell post-warranty hell

If your Dell laptop fails after its warranty runs out, you may still be protected by consumer laws.

Legally, a computer vendor has no obligation to replace faulty hardware after the warranty period expires — no surprise there. It means that when Dell Inspiron notebooks with a one-year warranty start failing after 14 months or two or three years after purchase, Dell is not obliged to help fix them. Although Dell has come good and repaired the notebooks of two APC readers which had failed shortly after the warranty ran out, it won't fix two other notebooks which failed two years after their warranty expired. The owners of those two notebooks aren't happy, as they expected their Dell Inspirons to last for more than three years.

One of those readers, Angela, had a three-year-old Dell Inspiron 6400 notebook which suddenly refused to boot earlier this year. She could not get a diagnosis, let alone a fix, from Dell tech support. Her experience mirrored that of our own Deputy Editor, Melanie Pike, whose three-year old Inspiron 6400 also suddenly refused to boot. Similarly, reader Carola Lavinier's Dell notebook failed to boot just two months after the warranty ran out. Another reader, Enid Harland, in Alice Springs, had a different problem with her 14-month old Dell notebook, but, as with all the others, Dell tech support was initially unable to diagnose the out-of-warranty problem and could not explain how to fix the notebook. Watchdog quickly discovered that Dell does have a process for having hardware diagnosed and fixed — the readers should have been referred by tech support to Dell's third-party repairer, local company Gizmo, which will investigate and fix out-of-warranty faults with Dell computers for a fee. Dell's General Manager of Home and Small Business, Evan Williams, told Watchdog that "Ensuring our customers have the best experience with their Dell products is our highest priority. If an issue does arise, Dell Customer Support endeavours to resolve the matter on the first phone call, and in those instances where it is simply not possible to find a resolution over the phone, we refer our customers to our on-site technicians, who are able to go to our customers to identify the issue."

Following Watchdog's inquiries, Dell sent Gizmo representatives to inspect Carola's and Enid's laptops and promised them a fix. However, in the case of Angela's and Melanie's notebooks, the Gizmo representative informed us both had "motherboard" problems and would be too expensive to repair. Since the notebooks were around three years old, Dell had deemed them too old to make good on. The obvious lesson here is that if you expect your Dell notebook to last more than three years, purchase an extended warranty. Melanie was not happy. She said: "I would have expected a mid-level notebook that cost me nearly $2,000 to last at least five years." Angela agreed. "I really expected a longer lifespan than three years for my notebook."

Although it seems that Angela and Melanie have no recourse, the NSW Office of Fair Trading points out that consumers *are* protected by another kind of warranty, their statutory rights as consumers. In NSW, for example, the Fair Trading Act and the Trade Practices Act state that goods for sale should meet a basic level of quality and keep working for a reasonable period. "If they don't, a consumer is entitled to seek redress. Depending on the circumstances, this may mean a refund, repair, replacement or compensation," said a Fair Trading spokesperson. Importantly, these statutory rights are not limited to a set time period.

"These rights exist regardless of any warranty offered by the manufacturer. A consumer may be entitled to a remedy under the statutory rights even though the manufacturer's warranty has expired."

Angela and Melanie feel aggrieved and will pursue Dell invidually through the Office of Fair Trading. APC will follow their cases because we too believe that a notebook should last more than three years. Angela and Melanie's Dells Inspirons clearly haven't.

We'll update you on this saga next month.

TOO OLD TO FIX
How long should you reasonably expect a notebook to function? Dell thinks 1-year.

22 thelab

PRODUCT REVIEWS & COMPARISONS

PLANTRONICS GAMECON 777

A good pair of headphones is an investment, rather than an expense. I personally tend to spend as much as I can when buying new headphones, as the difference between a good pair and a great pair can change the way you listen to your music. The Plantronics Gamecon 777s have come out of left field. A gamer-targeted pair of cans that are reasonably priced, comfortable and offer great sound? Sold!

PERFORMANCE ★★★★

The headphones sound amazing, the USB Dolby dongle takes potentially noisy sound cards out of the equation, and a noise-cancelling mic works nicely.

PRICE ★★★★★

You can spend hundreds on quality headphones, but the Plantronics show us you don't have to. Very reasonable, especially including the USB adaptor.

SETUP ★★★★

The cord could be a little more sturdy, for longevity and aesthetics, and having to load a driver for the USB might cause problems if you move from PC to PC.

LABS ROUND-UP

TOUCHSCREEN SHOOTOUT

The iPhone may have revolutionised the touchscreen phones market, but it's far from the only game in town. We check out the competition.

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A cost-effective enhancement, but those looking for an all-out upgrade won't find it here.

7/10

AMD Phenom II X4 955 Black Edition

What does AMD have lurking in the shadows?

AMD
www.amd.com
$350

Cheap way to bring old AM2+ systems back to life. ✔

Still trails behind Intel's i7 range: overclocking limited. ✖

SPECIAL FEATURES
3.2GHz clock speed
DDR2 and DDR3 support
Runs in older motherboards

AMD's latest chip, the 955, at first glance looks remarkably like the original Phenom II. It uses the same 45nm manufacturing process and the performance per clock remains unchanged. Apart from a slight nudge in the CPU's frequency, now grazing 3.2GHz, is there anything in it for overclockers and gamers?

Before we look at the stats, it's wise to note how friendly this chip is for existing AMD users. Unlike the move to an i7 system, which effectively requires an entirely new PC, the Phenom II CPU is compatible with your AM2+ motherboards. This makes it a very cost-effective upgrade. You'll need to doublecheck that your AM2+ motherboard has the necessary BIOS update though.

Like the earlier Phenom II, the 955 supports both DDR2 and DDR3. We tested the 955 in an ASUS M4A79T Deluxe motherboard with 4GB of Corsair XMS3 DDR3 memory. We were limited to an 8800GTX graphics card, but ran all of our benchmarks at extremely low resolutions to ensure this wasn't the bottleneck.

At default speeds, the 955 was about 40% slower than a similarly priced i7 920 system in the Crysis CPU time demo. However, Unreal Tournament 3 and Half-Life 2 were much happier stories, with the 955 less than 10% slower than the i7.

When we delved into our BIOS we saw how far the Phenom II can go. With no voltage increases, we were able to squeeze 3.8GHz out of our chip.

We expected great things after adding a little more voltage. It wasn't to be — no matter how far we upped the Vcore, the maximum stable speed we could attain topped out at 3.9GHz. It's not a terrible overclock, but doesn't match the 1GHz+ overclocks we've seen with i7 920s.

AMD has introduced nifty new software that takes overclocking one step further. Similar to the i7's turbo mode, two cores are automatically increased in frequency while the other two are lowered. Unlike Intel's automatic solution, AMD's requires manual software manipulation. Called Overdrive 3.0, it allows you to hand-craft profiles for each piece of software. Those who like to tweak will love it, but we were happy leaving our cores running at 3.8GHz.

The 955 brings lower voltages to the overclocking table, resulting in much cooler temperatures. For existing AM2+ owners it's a very tempting upgrade path, offering a massive boost in performance at a minimal cost. However, if you're in the market for an entirely new system, Intel's i7 chip remains our enthusiast's platform of choice.

Bennett Ring

ASUS
No.1 in Quality and Services
- The Wall Street Journal Asia
TOP CHOICE
FOR GAMERS
Republic of Gamers
ASUS Gaming Series
WWW.GAMEDUDE.COM.AU
GameDude Computers 3353 Pacific Hwy Springwood, 4127 QLD | Phone: (07) 3387 1500

7/10

ASUS F6Ve

Fragrance and notebooks make for strange bedfellows.

ASUS
www.asus.com.au
$2,199

Strong performance; HDMI output; great for multimedia. ✔

Gimmicky fragrance; short battery life. ✖

SPECIAL FEATURES *i*
Fragranced notebook
Core 2 Duo T6400
DVD Super Multi Drive

ASUS is blazing the trail with the F6Ve: the world's first scented laptop. This odd coupling probably brings to mind a heavily-perfumed notebook with pink flowers adorning the lid, but ASUS has opted for a decidedly gender-agnostic design. The F6Ve consists of a pearl white or glossy black case and a silver keyboard and accents, with a faint gloss swirl pattern on the lid and a textured keyboard base.

The fragrance is extremely subtle, so much so you probably wouldn't notice it if you weren't looking for it. We had to put our nose right up against the fan vent to smell it, and even then it was faint.

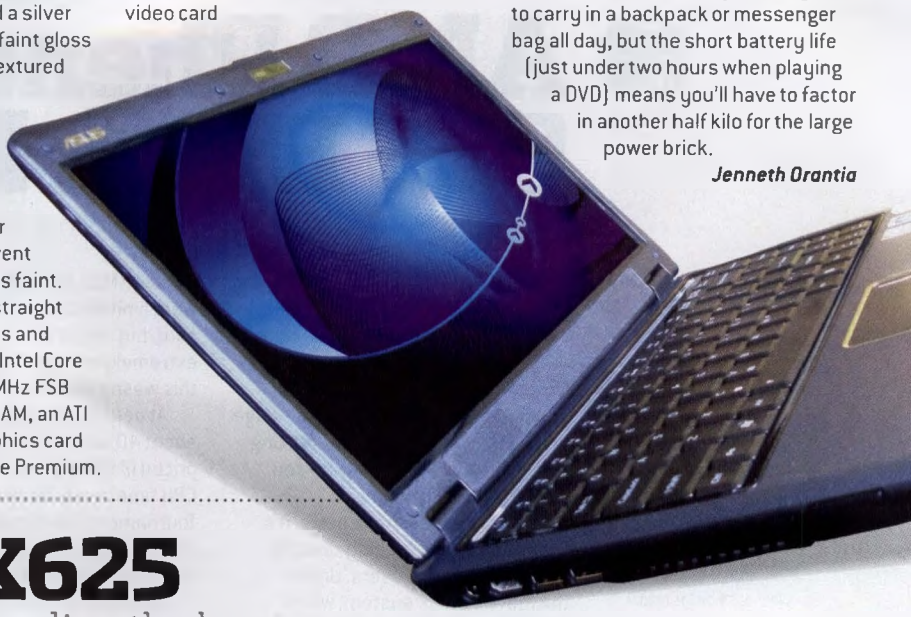
Scent aside, the F6Ve is a straight shooter when it comes to feeds and speeds. It runs a 2GHz T6400 Intel Core 2 Duo processor, with an 800MHz FSB and 2MB of L2 Cache, 2GB of RAM, an ATI Mobility Radeon HD 4570 graphics card (512MB VRAM) and Vista Home Premium.

The F6Ve performs equally strongly across the CPU, memory, graphics and HD tests in PCMark05, with an above average total score of 5,429. It also performed reasonably well in the graphics department with a 3DMark06 score of 3,073. The Radeon HD 4750 video card means it'll play well with most of last year's 3D games titles, and it'll also tackle HD video with no dramas.

ASUS has opted for a DVD Super Multi Drive rather than Blu-ray to keep costs down.

At 2kg, the F6Ve is light enough to carry in a backpack or messenger bag all day, but the short battery life (just under two hours when playing a DVD) means you'll have to factor in another half kilo for the large power brick.

Jenneth Orantia



9/10

MSI EX625

Better off not reading the box.

MSI
www.msicomputer.com.au
From $1,399

A very healthy hardware configuration; good for gaming and HD movies; the ATI 4670 is the star of the show; great value. ✔

It's a heavy beast, best suited to a sedentary life; Cinema Pro? Pure marketing fluff. ✖

SPECIAL FEATURES *i*
ATI Radeon 4670
Core 2 Duo processor
16in display

APC MAGAZINE apc EDITOR'S CHOICE

We love Taiwanese hardware manufacturers because their marketeers often have a hilarious habit of focusing on features we couldn't care less about. The EX625 is a fine example of this misplaced marketing magic. The "Cinema Pro Technology" offers decent notebook sound with a matchbox-sized subwoofer, alongside stereo speakers; although you're still better off using the 3 x 3.5mm stereo mini jacks.

Cinema Pro is also supposed to result in superior image quality. When it's disabled, the screen does indeed look dark and low in contrast. So yes, enabling Cinema Pro results in a better picture, but only because the display feels hobbled without it.

We can forgive the feeble Cinema Pro feature though, because the rest of the machine is tricked out with impressive hardware. The Centrino 2 processor ticks by at 2GHz, with a comfortable 2GB of DDR2 800 memory. Most impressive is the ATI HD 4670 GPU, which packs a potent 512GB of DDR3 VRAM. A Blu-ray drive is available, and the EX625 will churn through HD movies like a chainsaw to butter. It's even good enough for most of today's PC games, if you're not too ambitious with the settings.

A wide range of outputs cater to most entertainment needs: HDMI out, eSATA, three USB 2.0 ports and a 3-in-1 card reader. The only component that we found lacking is the hard drive, which spins at a relatively low 5,400RPM. This probably accounts for a slightly lower PC Mark Vantage score than we expected, at 3,421. The 6-cell battery is also average, giving up after 136 minutes of our DVD playback test.

Bennett Ring

8/10

Pioneer DreamBook M57T

If it's speed you need.

Pioneer
www.pioneercomputers.com
$4,169

High-performance CPU; fast disk and quality screen. ✔

Very heavy; low battery life; would have loved a Blu-ray drive. ✖

SPECIAL FEATURES
Intel Turbo Memory 2GB
Intel Core 2 Quad QX9300 Extreme 4GB DDR3

We've seen our fair share of unwieldy "laptop" computers you'd never considering letting anywhere near your lap for weight and heat reasons. Most of these attempt to replace a larger desktop rig by throwing in some faster parts and a big screen. Ninety per cent of the time they get the worst of both worlds. Too heavy to really be portable, and too slow to be a desktop replacement. Pioneer's DreamBook M57T bucks that trend: sure, its arm-achingly heavy, but boy oh boy it's quick.

The soul of the machine is seated firmly in an Intel Core 2 Quad QX9300 Extreme processor running at 2.53GHz with a whopping 12MB of cache. You're not even stuck there, as it's an Extreme Edition processor; jacking up the speed is not out of the question. The QX9300 is kept fed by 4GB of 1,066MHz DDR3. For storage, there's a single 320GB 7,200RPM hard disk drive, a far cry from the 4,200RPM sloggers seen in budget notebooks, and to top it off, for a big extra burst, there's a 2GB unit of the often overlooked Intel Turbo Memory Module.

We also like the high-resolution display, running at 1,920 x 1,200 (WUXGA), which meets all definitions of high-def for video. TheM57T is crying out for a Blu-ray drive to really make it shine. The big bright panel is driven by a 9800GTX with 1GB of memory. Tie that all together with a nicely designed chassis with strangely appealing metallic orange highlights and it's done.

The M57T chewed through our usual benchmark array, posting a 5,420 in PCMark Vantage and 10,694 in 3DMark 06. We didn't expect much from the battery life, and didn't get much either — around one hour, 20 minutes from a full charge.

If you're shopping for a desktop replacement, the M57T is by far one of the better options we've seen.

Nick Race

Heavy as they come, and yet as zippy as can be: the DreamBook M57T.

9/10

Samsung X460

Samsung slims down with its latest thin-and-light notebook.

Samsung
www.samsung.com.au
$2,999

Seriously stylish; excellent performance; highly portable. ✔

Battery life could be longer. ✖

SPECIAL FEATURES
LED backlit screen
Great design
Only 2.1cm thin

Samsung has been out of the notebook game for the last two and a half years, but its latest line-up of laptops and netbooks proves that it's still a force to be reckoned with. The X460 is Samsung's flagship laptop aimed at 'results-driven professionals', and it's the most stylish notebook we've seen all year. The all-black casing is predominantly glossy save for a striking brushed metal panel on the lid, and it's remarkably portable for a 14.1in display notebook, measuring 2.1cm at its thinnest point and weighing a mere 1.8kg.

Thin and light usually means underpowered, but the X460 has the brawn of a much larger machine, with a 2.66GHz Intel Core 2 Duo P9600 processor (1,066MHz FSB, 6MB L2 cache), a generous helping of 4GB of DDR3 1,066MHz RAM and NVIDIA GeForce 9200M GS graphics. This translates to an exceptionally high PCMark05 score of 5,868 — over a thousand points better than the average for a thin-and-light.

Graphics performance is well above average, given that most notebooks in the X460's class stick to integrated graphics solutions. The X460's score of 2,117 in 3DMark06 means it'll happily stream YouTube HD clips but struggle with 3D gaming.

The X460 is also well-endowed when it comes to ports and slots. There's a Super Multi Dual Layer DVD drive, 3 USB 2.0 ports, HDMI, memory card reader, ExpressCard, VGA, Gigabit Ethernet and headphone and microphone jacks.

As a day-to-day workhorse, the X460 is a delight to use. The 14.1in 1,280 x 800 LED backlit display is extremely bright, and the full-sized keyboard offers excellent tactile feedback. Three hours and 20 minutes' battery life was disappointing, however.

Jenneth Orantia

7/10

Toshiba NB200

A better keyboard, but wishing for more.

Toshiba
www.isd.toshiba.com.au
$748

✔ Solid build quality; affordable price; facial recognition login.

✖ Only comes with a 3-cell battery; some of the keys are undersized.

SPECIAL FEATURES
Improved keyboard
Long battery life
Atom 280 processor

We've reviewed enough netbooks with 1.6GHz Atom processors, 10in 1,024 x 600-pixel displays, 160GB hard drives and integrated graphics cards to wish for something — anything — to be even slightly different with the next model.

In that respect, the Toshiba NB200 doesn't have much to bring to the table. That said, the NB200 is still a worthy new contender to this crowded space. It's the cheapest 10-inch netbook that runs the newer N280 Atom chip, and it's also quite compact, weighing only 1.18kg with the standard 3-cell battery.

It's not quite as good-looking as the HP Mini 1100 we reviewed recently, but it comes close — the edges are nicely rounded, the slim base tapers in towards the front, and it's a pleasure to type on.

The NB200's keyboard is a significant improvement over the NB100, with a near-full-sized layout and pleasing tactile feedback. A few of the keys are undersized, but we're happy to overlook it given the full-sized trackpad and mouse buttons — a rarity in netbooks.

To sweeten the deal, Toshiba throws in a few goodies: facial recognition software is included for logging on using the 1.3MP webcam; one of the three USB ports has Toshiba's Sleep and Charge function for charging USB devices while it's hibernating or off, and there's a 3D accelerometer to keep the 160GB hard drive safe if it's bumped or dropped.

The bundled 3-cell battery is a disappointment given that most other netbooks in this category come with a 6-cell, but using the Long Life profile in Toshiba's excellent Power Saver utility, we were able to clock in a full four hours of web surfing over Wi-Fi.

Jenneth Orantia

Same old same old in netbook town, although Toshiba does chuck in a few goodies.

7/10

Kogan Agora Netbook Pro

One of the last Linux netbooks left standing.

Kogan Technologies
www.kogan.com.au
$499, plus postage

✔ 2GB of RAM out of the box; nice tactile feedback on the keyboard.

✖ Noisy fan; unfinished edges; underpowered speakers.

SPECIAL FEATURES
gOS pre-installed
2GB RAM
Atom 1.6GHz processor

Netbooks that run Linux are more the exception than the norm these days, but if you'd rather a small machine that runs gOS — a variant of Ubuntu Linux — out of the box, then the Kogan Agora Netbook Pro should be right up your alley.

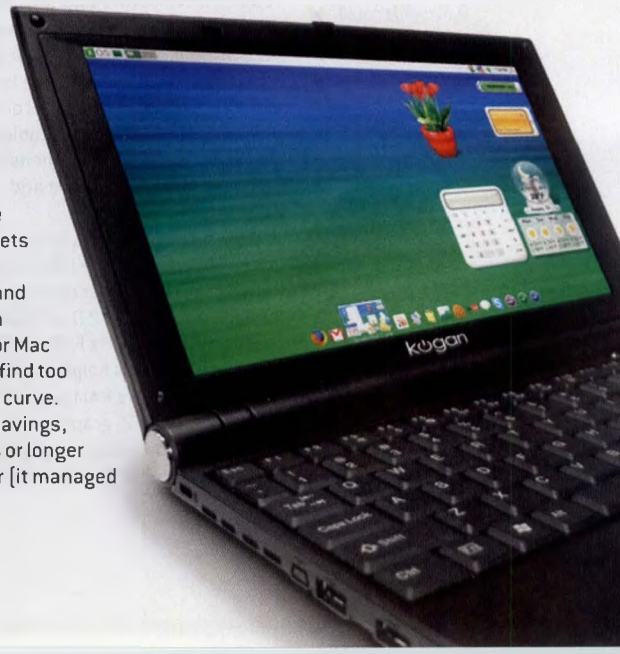
Kogan claims that it's the cheapest 10-incher available, but it's not too hard to find better-quality netbooks with similar specs that run XP for less money, especially once you factor in the Agora Pro's postage (an extra $30 or more).

This then begs the question: if there aren't any savings to be had from opting for this netbook over one that runs XP, does it offer any other benefits? Not really. It's got the last-gen 1.6GHz N270 Intel Atom processor, 2GB of RAM, 160GB HDD, near full-sized keyboard, and six-cell battery, but save for the RAM size, it's the same sort of specs you can get on a Windows netbook for a similar price.

The Agora Pro's hardware design is acceptable for an entry-level netbook, but it cuts corners on quality that the other players don't: Bluetooth is only offered as a USB, cutting the available USB 2.0 ports down to two, the fan is almost persistently on and distracting in a quiet environment, the corners of the casing feel rough and unfinished, and the speakers are tinny and underpowered.

As far as the gOS distro goes, it's got a nice mix of Mac OS X-style elements like the dock at the bottom and a widgets layer (courtesy of Google Gadgets), and those coming from either a Windows or Mac background won't find too much of a learning curve. Still, with no cost savings, hardware benefits or longer battery life to offer (it managed three hours and 35 minutes of web surfing over Wi-Fi), we don't see the Agora Pro taking much business away from the better-known vendors unless it gets a big price cut.

Jenneth Orantia



LG Prada

Good set of features, but doesn't look or feel very fashionable.

LG
www.lge.com.au
$999

Versatile QWERTY keyboard; long battery life; decent multimedia playback.

Thick; plastic construction; monochrome menu system.

SPECIAL FEATURES
QWERTY keyboard
Touchscreen
60MB internal memory

Giving a phone a designer label sets a pretty high bar for it in terms of looks, sophistication and all-round desirability. Minus the Prada name, we think LG's latest phone is a decent high-end handset — we're just not sure that it lives up to its Italian fashion label branding.

For starters, the Prada is thick. Understandable given the full QWERTY keyboard that slides out from the side, but since Prada clothes are usually shown off on emaciated supermodels, we expected something sleeker. We were also expecting brushed metal, stainless steel or some other premium material; instead, we got a plastic construction with a cheaper feel than you'd expect from a designer phone.

Sadly, the software isn't much better. It's the same proprietary LG software from the Renoir and Viewty, which is simple enough to navigate, but it's taken the whole design label motif a bit too far by limiting the menu themes to black on white or white on black. It looks different, but in our opinion, it's a waste of a colour screen. If you can get past the Prada's decidedly non-designer label look and feel, it adds a QWERTY keyboard to the original Prada phone's touchscreen design, and the keys are easy to press with good tactile feedback. Sliding the keyboard out automatically switches the display orientation to landscape, with a custom menu layout that displays a carousel of commonly-used apps.

The 3in 240 x 400 display uses a capacitive touchscreen like the iPhone and, ironically, doesn't respond to taps from fingernails. The standby screen consists of three home screens that you can move between by swiping your finger, giving you quick access to widgets, speed dials and shortcuts.

The Prada isn't a multimedia-oriented phone — hence the scant 60MB of internal memory and proprietary headphone jack. But there's still a lot on board to make music and movie buffs happy. The bundled headphones have an inline remote control for navigating through tracks and adjusting volume, and brand whores will like the prominent PRADA label on each earbud.

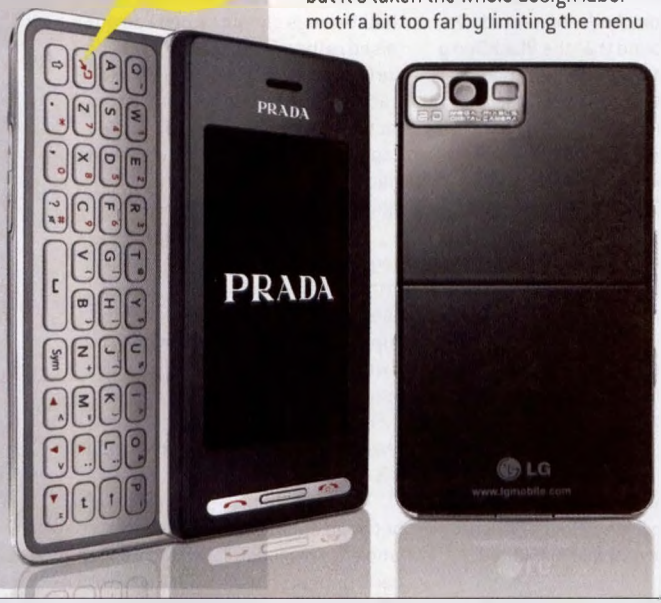
There's native support for DivX and XviD files, but since it won't scale down higher-resolution videos, you'll typically have to run them through the supplied DivX for Mobile software. Video playback is smooth, and output from the external stereo speakers is rich and powerful for their size.

There's also a five-megapixel auto-focus camera on the back with a Schneider Kreuznach lens and image stabiliser. It doesn't have a Xenon flash, though, so you'll still need good lighting and a steady hand to produce anything half-way decent.

Unlike many other touchscreen phones in this price range, the Prada doesn't have a dedicated app store to download extra software from. It supports Java apps, so it'll happily run Gmail, Google Maps and Opera Mini, but it's slim pickings otherwise. The Prada's email app is extremely basic, and while the web browser supports multi-touch for zooming into web pages, it throws back a 'Memory full' error when you try to load a site that's not optimised for mobile.

Battery life is surprisingly good considering it's only got a 950mAh battery. With moderate usage, we were able to stretch it out to over four days.

Jenneth Orantia



The LG Prada: does it carry the sophistication of its namesake?

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Open: Mon-Thur: 9am to 6pm, Fri: 9am to 5.30pm
Sat: 9am to 3pm, Sunday and Public Holidays: Closed

A BlackBerry by any other name? Nokia devises its own solution for email on the go.

9/10

Nokia E75

Nokia makes a play for the consumer email market.

Nokia
www.nokia.com.au
$979

✔ Full QWERTY keyboard; free push email; 3.5mm headphone jack.

✖ Doesn't natively display email in HTML; cramped numeric keypad.

SPECIAL FEATURES
Full QWERTY keyboard
4GB microSD

APC MAGAZINE apc EDITOR'S CHOICE

Nokia has RIM firmly in its crosshairs with the launch of its latest business-centric smartphone, the E75. It follows the same design theme from the E66 and E71, with a solid plastic and steel construction and premium build quality, and adds a slide-out QWERTY keyboard and the new Nokia Messaging push email service.

The latter is what brings the E75 closer in line to a BlackBerry. You can configure up to 10 Gmail, Yahoo! Mail, Windows Live Mail and most other free and hosted email accounts, and new messages are automatically pushed to the phone from Nokia's mail servers.

Unlike the BlackBerry Internet Service, however, you don't have to provision a separate BlackBerry data plan to use it. Owners of the E75 will get the service free for the phone's lifetime, and Nokia is currently working with Australian carriers to bundle the cost of the service into data plans for future Nokia handsets.

Those that have struggled with Nokia's basic email client will be pleased to know it's been cleaned up considerably on the E75. Nokia has taken its cue from the BlackBerry by grouping email by date and allowing two lines for each message in the main inbox view to comfortably display the subject, sender and time.

We set up the same Gmail and Yahoo! Mail accounts on the E75 and a BlackBerry Bold, both connected over HSDPA, and found that the BlackBerry would consistently deliver Yahoo! Mail messages faster than the E75, by anywhere from half a second to half a minute. Gmail, on the other hand, varied a lot in our testing — some days, the E75 would beat the Bold by well over 10 minutes; other days, the opposite would be true.

Nokia's claims to support HTML email with the new service is technically true but a tad misleading. Messages are displayed in plain text, but there's a link in the message to view it in HTML format — a feature that the older Messaging client has always had. This is in contrast to the HTML implementation on BlackBerry, Windows Mobile and iPhone, where messages are natively displayed in HTML.

The E75's design makes text and numeric entry extremely versatile; the numeric keypad is handy (albeit a little cramped) for typing in phone numbers, and the slide out QWERTY keyboard works a treat for writing long text messages and emails.

The QWERTY keyboard is nice and roomy, with a good-sized spacebar and dedicated keys for commonly used punctuation symbols. If we wanted to split hairs, we could say that the keys should've been slightly raised rather than flush with the surface, and key travel should be a fraction deeper for a more satisfying tactile experience. That said, we're happy with the keyboard overall, and glad that it doesn't add too much extra thickness.

The E75 offers lots of features beyond email, making it an equally attractive choice for non-business users. There's a trial for Nokia Maps, support for the N-Gage gaming service, a well-rounded suite of multimedia applications (complete with a 3.5mm earphone jack and a reasonably powerful speaker) and a 3.2-megapixel camera.

There's a small lag when moving between applications, but on the whole we're pleased with the E75's performance. It uses 369MHz with 50MB of built-in memory, and it's bundled with a 4GB microSD card. We're disappointed that it only comes with a 1,000mAh Li-Ion battery, especially compared to the E71, which had a massive 1,500mAh battery. With medium usage, we got just over a day's worth before the battery was down to one bar.

Jenneth Orantia

7/10

Acer Aspire X5810

Skimps on size, but not on CPU. Surprised? We were.

Acer
www.acer.com.au
$999

Small and quiet; surprisingly fast; looks good.

Poor for gaming.

SPECIAL FEATURES
Tiny form factor
Desktop CPU
640GB hard disk

We've been impressed with Acer's pint-sized PCs in the past. They've offered good value and good features in smart-looking, non-intrusive packages. The X5810 is the latest model and first impressions are good.

It's a small form factor PC but offers fully-powered components. It sports a Core 2 processor (2.8GHz E7400), 2GB of RAM and a 640GB hard disk. We couldn't benchmark it properly as we had an engineering sample with a slightly inferior specification, but it still scored a mid-range 4,578 in PCMark Vantage. The proper retail machine will be faster and comfortable at performing processor-intensive tasks like home video editing and such like.

The graphics card isn't so hot (NVIDIA GeForce 210) but it does come with both DVI and HDMI ports: the latter is useful for plugging into HDTVs. It will play very old games but won't play anything new without you severely dropping resolution and detail settings.

It would make a great living room PC, especially if you add a TV tuner to the PCI Express x1 slot (which is incidentally the only upgrade you can make without taking the whole PC apart). Its near-silent running helps in this regard too.

It comes with a mediocre set of stereo speakers, which don't know the meaning of the word 'bass', plus a wired optical mouse and keyboard, which are basic and unexciting. There's no monitor.

Acer's small PCs were among the very first to provide desktop power in a very small form factor — beforehand, similar machines used low-powered notebook parts. However, this new range, thanks to advances in component power and heat efficiency, is now offering respectable desktop performance. You can still get much more from monster PCs, but as a day-to-day PC few will find it wanting; gaming aside. If you want an affordable PC, this is a great-value choice.

Nick Ross

7/10

Acer Aspire M7720

Mid-range power for the masses.

Acer
www.acer.com.au
$2,099

Looks good; quiet; unique features.

Could be faster; slow hard disk drive.

SPECIAL FEATURES
Core i7 processor
Radeon HD4850
Stylish design

With the M7720, Acer has stylishly added something new to the standard desktop PC design. Two hard disk cages, hidden behind a panel on the front, allow you to hot-swap two SATA hard disks while a dedicated 'Backup' button will let you back up to them in a single motion. There's also a touch panel above the optical drives, which lets you navigate and adjust Media Center settings without using a keyboard or mouse. Plus, if you insert a memory card and then press the 'Copy' button, all of your media will instantly be transferred to your PC according to some pre-defined settings. It all worked very well.

One of the two optical drive slots is occupied by a DVD writer (which supports Blu-ray) and the other is empty. Below these is a hidden panel, which slowly folds out to reveal two USB ports, two audio jacks and a FireWire port. The all-format memory card slots pop out of the case's top along with two more USB ports.

Under the bonnet is a Core i7 920 processor running at the stock 2.66GHz. It's flanked by 3GB of RAM in triple channel plus a 5,400RPM 1TB hard disk. Along with the proprietary Acer X58 motherboard, it scored a modest 5,446 in PCMark Vantage. It's no slouch but we'd expect better from a Core i7 system. The graphics card is an AMD Radeon HD 4850. It scored 7,678 in 3DMark Vantage, which shows it will confidently play most games (but not necessarily at their highest settings).

Basic-but-friendly media viewing and editing software is included, as are a few basic games. There's also proprietary software to share media with other networked PCs.

All in all it's a good-value, mid-range family PC that offers a bit of everything. It's fast enough to handle most apps, can play games, looks good and runs quiet. Competitors from TI Computers and Pacstar have offered more punch for enthusiasts for similar money, but they aren't nearly as well-built or as stylish and desirable as this impressive all-rounder.

Nick Ross

8/10

Corsair Dominator-GT 6GB

The fastest kit we've seen to date.

Corsair
www.corsairmicro.com
$679

Very fast; cooling sink; low timings. ✔

Aimed at the highest-end user; no value for everyday use ✖

SPECIAL FEATURES
8-8-8-24 timings
2,000MHz performance
6GB kit

Expanding upon the high-performance Dominator-GT series, Corsair has added a 2,000MHz kit that not only packs a massive 6GB of memory but some pretty impressive timings that make it really stand out from the pack. Carrying the 2,000MHz clock, straight away we know that the kit we've got here's going to pack quite a punch; with that said though, this isn't anything new, with the last few kits we've looked at carrying this speed. Where the Dominator-GT does begin to stand out is in the latency department: with an 8-8-8-24 setup, it's the fastest kit we've seen to date.

To make sure we're able to achieve these timings at 2,000MHz, Corsair has included a fan sink — this isn't the first time we've seen this implemented into a kit from Corsair, but in conjunction with the heatsink design on the modules, this two-fan cooler helps keep memory temperatures as low as possible. Then there's also the fact that it does look very cool — especially if you have window in your case.

In the performance department there's no denying that the Dominator-GT kit is fast. In synthetic tests the aggressive timings on offer help it perform better than anything else we've tested to date. When it comes to a real-world environment though, like gaming, the extra-low timings (which boost the price of the kit) don't show any real advantage. What this means is that the kit is aimed at the most hardcore user who wants the best of the best (and is right into benchmarking, where the benefits of the lower latency on offer are seen in tests like Everest and Sandra).

Packing everything you want in a high-performance memory kit, the Corsair Dominator-GT stands out from the pack — be it the impressive clock rate or the extra cooling option that has been implemented, this is three sticks of memory you're going to want to get your hands on. There's one problem though, and it's a big one: at $679, it's one of the most expensive memory kits on the market.

Shane Baxtor

9/10

Galaxy 9600 GT Low Power

Small, lean and green around the edges.

Galaxy Tech
www.galaxytech.com
$199

Low profile; HDMI; low power; quality cooler. ✔

Older tech. ✖

SPECIAL FEATURES
Copper-bottomed cooler
Low-profile card
512MB GDDR3

The 9600 GT is one model that seems as if it's been around forever. It's only been 12 months though. NVIDIA has gone a bit green with some of the older models in the 9000 series, and Galaxy has jumped straight on the bandwagon to take advantage.

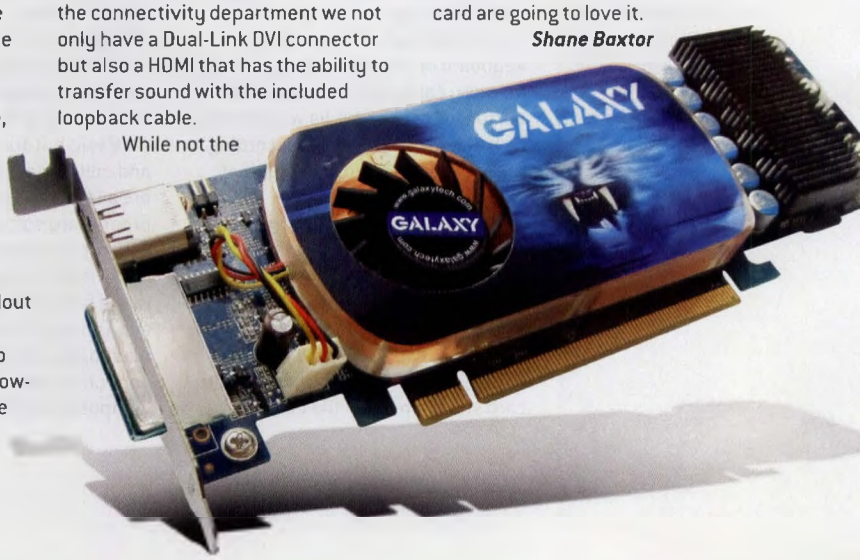
While a very capable card in its day, it feels a bit past its prime; with that said, we gave it a chance to see if it could offer something new. In the specifications department the card doesn't look as impressive as more recent models: 600MHz on the core, 1,800MHz DDR on the 512MB of GDDR3 memory, along with a 1,625MHz shader clock, placing the card well and truly in the mid-range market.

Pulling the card out of the box, however, you can see its first standout point being the low-profile design. Galaxy has given users the ability to make full use of this by including a low-profile and full-height bracket. While the cooler also might look a bit on the small side, it doesn't lack the quality seen in higher-end ones, with a copper base being implemented to help keep temperatures as low as possible.

Keeping with the low-power theme there is no power connector needed (unlike its big brother). The features don't stop there either: in the connectivity department we not only have a Dual-Link DVI connector but also a HDMI that has the ability to transfer sound with the included loopback cable.

While not the fastest card on the market, it caters to people who have branded PCs with a low-profile case and no extra power connectors. The implementation of HDMI also makes it an excellent choice for a low-powered home theatre PC that will not only draw little power but can be thin. It's not for everyone, but those who are interested in this kind of card are going to love it.

Shane Baxtor



8/10

PC Power & Cooling Silencer 910 Watt

Full power, but cables might be too much for some.

PC Power & Cooling
www.pcpower.com
$299

88% efficiency; excellent specs.

Single fan; non-modular.

SPECIAL FEATURES
12 SATA connectors, seven molex
84A peak power
88% efficiency

Running a power-intensive setup? This could be just what you're looking for.

PC Power & Cooling has been a leading power supply manufacturer for many years. With its new Silencer series we're seeing models ranging from a quite basic 370-watt unit to the powerhouse that is the 910 Watt (1,000-watt peak). Looking at the unit the first thing we see is that the company hasn't used modular connectivity — this isn't uncommon for companies wanting to offer the absolute best quality of power. Doing away with extra connection points and plugs allows for a "cleaner" power connection (but is definitely harder to organise inside your case).

The PSU's external casing is a plain design and uses only a single 80mm rear fan to remove the hot air out of the unit. As for raw specifications, the Silencer 910 has the goods. Unlike most other companies, a single 74 AMP (84A Peak) is offered, with a silver 80+ efficiency rating, full SLI support and automatic fan control.

Connectivity is capable with a massive amount of cables running off the power supply — apart from the standard 24-pin, 8-pin and 4/8-pin CPU connectors, we have two 6-pin and two 6+2-pin connectors, 12 SATA connectors, seven molex and a single floppy.

Overall, we've got a very high-quality power supply that doesn't have an issue running power-intensive setups like an overclocked i7 system with two GTX 295s. The lack of modular support, while a good option for higher-end units, is going to be a problem for people with smaller cases, due to the massive amount of cables offered.

It's a fantastic unit that's going to be a must for people wanting the absolute best performance. If you prefer modular technology, while still having a good quality supply of power, you'll need to look elsewhere.

Shane Baxtor

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Iomega Home Media Drive

A handy addition to the digital loungeroom.

Iomega
www.iomega.com.au
$429

Snappy performance; stream multiple files simultaneously. ✔

A little noisy. ✖

SPECIAL FEATURES
1TB storage
Gigabit Ethernet
Easy configuration

Resembling a regular desktop hard drive, Iomega's Home Media Network Hard Drive takes a 1TB drive and encloses it in an attractive, brushed aluminium case that connects to your router via Gigabit Ethernet, making it easy to store and share photos, music and video to a variety of DLNA devices.

The Home Media Network Hard Drive was dead easy to configure and use, although our Vista system did need a reboot in order to see all the fileshares that were created during setup. However, we expect that tells us more about Windows networking than it does about this NAS. After the reboot, we saw a number of shares created for different types of data.

Rather than pointing you to the Home Media Network Hard Drive by a web browser, Iomega has installed a stripped-down Linux variant that makes access to the default shares and configuration very easy. By default, most of the folders are publicly available to anyone on your network, but we found it easy to create user accounts and assign them permissions to specific shares.

Performance was quite snappy. We copied a 480MB package of files to the unit over Ethernet in just under 40 seconds. While we've seen faster results, these have typically been with larger four and five-bay RAID arrays. However, given that many people will probably keep the Home Media Network Hard Drive near their workstation, we did find it a little noisier than similar USB drives.

Given that one of the Iomega Home Media Network Hard Drive's main functions is to share data, and in particular multimedia content, we were very impressed with it copying our 480MB test file payload back to our system in less than 19 seconds. We were able to stream multiple files to different systems simultaneously without any problems.

Not everyone needs such a small NAS, but those looking to share a few movies across computers or back to their Xbox or PS3 will find the Iomega Home Media Network Hard Drive a handy addition to their digital loungeroom.

Anthony Caruana

D-Link DNS-343

A lot to like with lots of storage.

D-Link
www.dlink.com.au
$769

Easy setup; performance. ✔

Can get a little loud. ✖

SPECIAL FEATURES
Four Drive Bays
Gigabit Ethernet
OLED Display

D-Link's been delivering network gear for the home and office for some time, so it's no surprise that they're applying their network expertise to the storage business. The DNS-343 is D-Link's highest-capacity NAS, with room for up to four 1.5TB drives.

The DNS-343 can be purchased without any drives. Installation is simple and 100% tool-free. We installed three drives and configured them in a RAID 5 array. There's also support for JBOD, RAID 0 and RAID 1. Setting up our three 320GB disks took less than an hour from installation to readiness to use. All the configuration is done from a web browser but D-Link's Easy Search Utility made it easy to map the default shared folder to a drive and to find the DNS-343 on our test LAN. The utility is a Windows-only app but it was easy to determine the DNS-343's IP address by looking at the OLED display on the front of the unit.

The front of the DNS-343 is dominated by a bright OLED display that shows useful information like the device's operating temperature and the state of the RAID array. There's a USB port on the back of the DNS-343 for sharing a printer over your LAN.

Copying our test payload of 480MB revealed that the DNS-343 is no slouch, with the files being written to the RAID 5 array via Gigabit Ethernet in just 30 seconds. Copying the same payload back took just a second longer. Also, playback using the DNS-343's inbuilt iTunes server worked perfectly, although we found the setup process fiddly. The DNS-343 includes an FTP server and a web server.

Although the DNS-343 was reasonably quiet we wouldn't suggest placing it at a workstation. Should the DNS-343 run into any operational problems, like running low on space or overheating, it can be set to send email alerts.

With solid network performance and a reasonably easy setup process, there's a lot to like about the DNS-343.

Anthony Caruana

7/10

Lexmark X466de

A big dog for a big job.

Lexmark
www.lexmark.com.au
$3,208

Lives up to speed claims; excellent touchscreen. ✔

Awkward network scanning; no PC faxing. ✖

SPECIAL FEATURES
- Large, bright and accurate touchscreen
- PostScript standard
- Hard drive for job storage
- Standalone printing

The X466de is a hefty (23kg) monochrome workgroup MFD with 10/100 Ethernet and USB 2.0 interfaces, and sporting a touchscreen that's a joy to use. Not only is it large (18cm diagonally), bright and sharp, the size and accuracy means that even typing in email addresses is largely problem-free.

The installer loads printer drivers (including PCL and PostScript), network and USB scan drivers, various supporting software items, and the user guide. Despite specifying the printer's IP address, the installer associated it with LPT1: so no jobs appeared until we manually created a new port. Custom install scripts can be created to set up several PCs identically.

The first page of our business document emerged in eight seconds, with page two dropping less than two seconds later — impressively close to the claimed speeds. Text quality was fine, smooth and dark.

Features include ADF, duplexing, secure print, print first copy only (for final check before running off multiple copies) and stored jobs (eg. to print forms on demand). An 80GB hard drive is standard on the X466de.

A built-in web interface is used for administrative tasks as well as everyday jobs like scan to PC, though we'd prefer to initiate scans from the X466de's front panel. Sending scans to an FTP server or as emailed attachments are supported.

Plug a thumb drive or PictBridge camera into the front panel USB socket for standalone printing (eg. JPEG or PDF files). You can also scan to a USB drive, which may be more convenient than Lexmark's approach to network scanning.

The fax functionality seems basic — in particular, there's no support for PC-based sending or receiving, though incoming faxes can be held for printing on demand or on a schedule.

Stephen Withers

6/10

Kodak ESP 3

A wildly mixed bag.

Kodak
www.kodak.com.au
$159

Claimed low running cost; good photo printing. ✔

Indifferent colour when printing office documents and copying. ✖

SPECIAL FEATURES
- Front USB port for cameras
- Scan to file or email

Unlike other manufacturers, Kodak provides a reasonably long mains lead to the adaptor brick, and a USB socket on the back panel rather than one hidden inside the device's body.

There's been a trend to separate tanks for each colour, but Kodak packs five inks into the colour tank, with a separate black cartridge. If you're concerned about wastage, Kodak claims 50 per cent cheaper running costs and the tanks are certainly capacious for their prices.

The software bundle comprises drivers, Ai0 Home Center, Apple's Bonjour, and support for Kodak cameras and EasyShare. There's also a bunch of greeting card templates.

Ai0 Home Center provides remote control of the device, for example, to scan or enhance and print pictures. You can scan to a file, to email, or to an application. Kodak's software offers colour restoration but falls well short of Epson's. It also allows basic editing, including red-eye reduction and 'facial retouch'.

A pair of memory card slots support the common formats, and there's a front USB socket for PictBridge cameras, storage devices or the optional Bluetooth adaptor.

There's no output tray — pages just drop back onto the feed tray.

Click to drop time for our business document was 53 seconds for the first page and 27 for the second, or roughly two pages per minute.

Black text was sharp and dense — and equals more expensive inkjets. Colours were more subdued than we're used to. Reds tended towards salmon, and greens to lime — but blues were as expected.

When copying, greens came out darker than the originals, blues took on a purple tinge, but reds again looked pale. Some minor banding was visible.

Photo printing took a respectable 57 seconds for a 6 x 4, and the colour rendition equalled that of MFDs costing twice as much.

Stephen Withers

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M908APC

9/10

Sony Walkman X Series

Is Sony back in the game?

Sony
www.sony.com.au
16GB: $649; 32GB: $799

OLED display; built-in noise cancelling; top-notch sound.

Very expensive; limited web browser.

SPECIAL FEATURES
OLED display
Noise-cancelling
Long battery life

It's been a long time coming, but Sony has finally produced an MP3 player that's worth buying over an iPod. The Walkman X Series is the company's latest flagship Walkman, with an impressive mix of next-gen tech like a 3.2in OLED touchscreen, integrated digital noise-cancelling and built-in Wi-Fi for YouTube and web browsing.

The X Series' screen may be smaller than the iPod touch's, but what it lacks in size, it makes up for tenfold with its vibrant OLED display. The bright and vivid colours pop off the screen, and contrast and viewing angles are HDTV-quality.

A unique feature is the built-in noise-cancelling, which uses the same sort of 'positive versus negative soundwaves' technology used by standard noise-cancelling headphones. Since the microphones are located on the supplied earbuds, it only works with them attached. Walking along a busy street with no music playing, it cut out around 80% of ambient traffic sounds. With music playing over the top, we couldn't hear a thing from the outside world.

You can turn the noise cancellation feature off, and it's a good idea if you want to save on battery life. With noise cancelling on, we were able to get 14 hours and 20 minutes of music playback. Switched off, we got an extra four hours on top of that.

Fancy features aside, the X Series is one of the best players we've tested based purely on its music playback capabilities. Audio quality is outstanding, it's small enough to tuck into your back pocket, and there are playback buttons on the top so you can change tracks blind.

The X Series' main inhibitor is price. The 16GB version is available for $649 and the 32GB version $799, compared to the iPod touch at the same capacities for $419 and $549 respectively. The Sony is the better all-round portable media player, but we're not sure the hefty price premium is justified.

Jenneth Orantia

9/10

Plantronics Gamecom 777

Not just for gamers.

Plantronics Australia
www.plantronics.com.au
$149

Supports analogue stereo and Dolby Surround via USB dongle.

Need to install drivers.

SPECIAL FEATURES
Noise-cancelling mic
Long-wear comfort
Dolby Surround

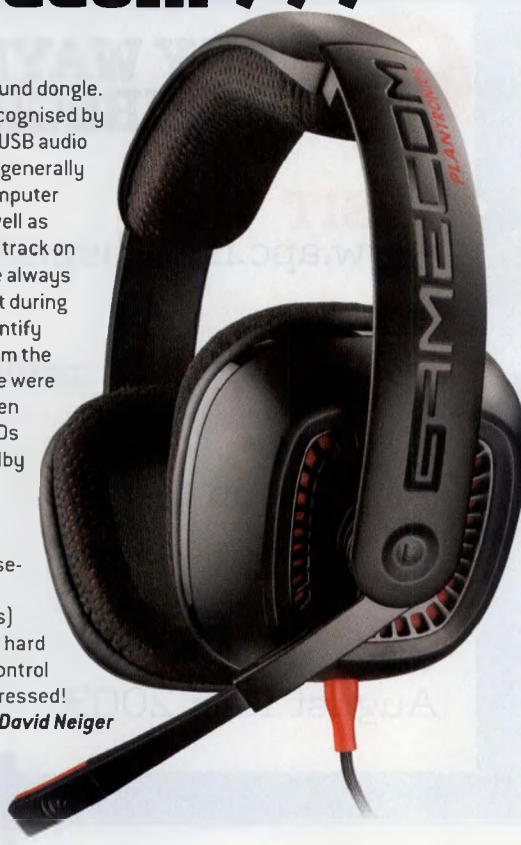
Even though designed specifically for gamers, the Plantronics Gamecom 777 headphones are ideal for enjoying quality audio from your home theatre system or PC. When it comes to sound, the Gamecom 777s pack a real punch, leaving most other in-ear or even over-the-ear headphones for dead. Despite their size, they are surprisingly lightweight and comfortable, allowing you to wear them for hours on end without feeling like your ears have been squashed.

We tested the audio output using the Digital Video Essentials test disc and found the headphones frequency response to be from 28Hz to over 17,000KHz, which is well beyond the range of most people's hearing. We then listened to music from our Pioneer audiophile SACD player and were impressed. Both the tests and our hearing confirmed that the sound was even and well balanced, free of sibilance and artificial boosting of bass or treble.

What sets these headphones apart is the included USB Dolby Surround dongle. The dongle is immediately recognised by Windows XP, Vista and 7 as a USB audio device, which bypasses the (generally noisy) sound card in your computer giving you clearer sound as well as decoding the Dolby Surround track on your DVDs or games. We have always been sceptical about this, but during our tests we could clearly identify all five surround channels from the stereo headphones as if there were five speakers in the room. Even stereo recordings (such as CDs or MP3s) benefit from the Dolby Pro Logic II decoder built into the dongle by giving a more spacious sound field.

For gamers, there is a noise-cancelling boom mic (which tucks up into the headphones) with an easily accessed (and hard to break) volume and mute control on the cord. We are most impressed!

David Neiger



8/10

Kogan Kevin37

Is it a tax stimulus payment well spent?

Kogan
www.kogan.com.au
$900

Stunning value; good everyday picture quality. ✔

Poor blacks; ugly; mediocre sound. ✖

SPECIAL FEATURES *i*
Full HD resolution
37in display
Digital tuner

APC MAGAZINE HIGHLY RECOMMENDED

Ruslan Kogan is based in Melbourne, and his eponymous company sells electronics online direct from factories in China. As such, we've seen products at staggering price points that undercut the competition. Naturally, the products tend to look and feel cheap, but they regularly punch well above their weight. But how does the 37in model fare?

Its announcement caused a media storm, with the premise of it being something to spend Prime Minister Rudd's $900 tax rebate on. Originally, it was slated to support only 720p, but a rise in the dollar's value means it now supports Full HD.

"Does this TV make my face look ruddy?"

Unsurprisingly, it's not the most stylish-looking device, thanks to a thick, black, blocky bezel and base. But it's no swamp donkey. The remote is simple but can be annoying: button layout is iffy, it's occasionally unresponsive and laggy, and the range seems to be rather poor.

Connectivity includes two HDMI, two component, and two composite ports, plus single S-Video, VGA and coaxial S/PDIF sockets.

When watching regular HD TV we were very impressed. Colours were all natural, detail was good, and noise in non-static areas was minimal. Flesh tones were generally fine, but in some broadcasts they became too ruddy (pardon the pun). In fast-moving sport, there was very little judder despite the absence of 'Motion Flow' technology. Jaggies were minimal and we had very few gripes.

SD broadcasts were generally very good, although interlacing aberrations and jaggies were frequently visible around moving objects, people's eyes and text. The lack of image-enhancing technology didn't bother us too much but it was especially noticeable when watching poor-quality, low-resolution broadcasts.

When watching Blu-ray movies we missed having native 24fps playback. Movies do play with 24fps forced on, but there are constant aberrations on screen. Also, note that the backlighting technology is not cutting edge: the letterbox bars around movies are far lighter and more noticeable than with expensive competitors.

Using the HQV quality benchmark, noise was prevalent in the barely moving HD images but motion ghosting was minimal. In truth, though, when we did see noise, it was mainly in the background and not too distracting. De-interlacing and jaggie-reduction performance in HD was again very good.

Sound comes from two 8W speakers and is adequate. Definition, punch and bass are all lacking, but it remains very usable. You can connect extra speakers via coaxial S/PDIF.

All in all, the main gripes people will have in the real world are slight aberrations when watching SD broadcasts and the lack of true blacks. But considering the competition for Full HD TVs starts at $1,400 (if you're lucky), the Kevin37 is staggeringly good value. The bells and whistles might be missing, but if you simply want a new TV that's future-proof for as little as possible, this will surpass the expectations of all but home theatre connoisseurs.

With more and more HD broadcasts appearing, the Kevin37 could help promote the take-up of Full HD in Australia. You can buy larger 'HD ready' TVs with a maximum resolution of 720p but you'll be kicking yourself down the line if you do.

Nick Ross

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Ideal for Video Streaming and File Transfer

• 5 operating modes
• 90 mW power for extended range

Just $115

Dealer inquiries welcome
*Real world tests at 300 Mbps connect speed

FreeNet Antennas

www.freenet-antennas.com/uwn

8/10

Hauppauge Nova-TD

Freeview support and Aussie localisation.

New Magic
www.newmagic.com.au
$179

Excellent software; dual HD tuner; two-year warranty.

No analogue tuner.

SPECIAL FEATURES
Freeview-compatible
Solid remote control
Localised for Australian users

It was only a matter of time before we would see the F-word used to describe tuner cards and yes... the Hauppauge Nova-TD stick is designed specifically for Freeview!

What sets it apart from other TV sticks is not so much that it receives Freeview but the quality of the software and drivers supplied, as well as a full-sized remote control that fits comfortably in the hand. The remote can be used with Windows MCE or the supplied WinTV software and is one of the better controls we have used.

Installing the Nova-TD under Vista is a simple matter of loading the drivers then running Windows Media Center, Hauppauge WinTV or any other third-party PVR that works with BDA drivers. The tuner found all the available services without any difficulty and within minutes we were watching HDTV.

The USB stick has two HD tuners built in (with separate antenna connectors if required) allowing you to watch one program whilst recording another if your software supports this. Picture quality is good and free of any stutter, even whilst simultaneously recording two HD television programs.

The supplied WinTV software is excellent and in our view superior to Windows Media Center. WinTV has been localised for Australian conditions, including rapid tuning of available channels in your area (rather than scanning all channels), support for the EPG and OSD. The software takes full advantage of the dual tuner capabilities allowing you to schedule one recording whilst watching or recording another channel.

Hauppauge has not wasted money on useless TV antennas or other junk; instead they have provided a high-quality tuner card with a two-year warranty, excellent remote control and drivers that work well. As long as you don't need an analogue tuner, this USB stick is excellent.

David Neiger

8/10

Yamaha BD-S2900 BDP

Does the extra cost buy you quality?

Yamaha Music
www.yamahamusic.com.au
$1,499

Outstanding build and picture quality.

Price; no Ethernet port; no BD-Live support.

SPECIAL FEATURES
SD card slot with AVCHD
5.1 channel audio
HDMI

Why would you spend so much on a Blu-ray player? The answer is quality! Picking up the BD-S2900 you can feel that this player has been crafted in rather than assembled to a price. According to Yamaha, the extra weight is due to isolated components to minimise noise, a high-quality transport system to improve data retrieval and top-quality components.

The back of the unit has all of the connections you would need to connect to a high-end home-theatre system, including HDMI, component, digital audio (coax and optical), 5.1 channel analogue audio and even S-Video and composite. RS-232 and mini-jack connectors are also provided to allow you to interface the player to a remote control module in a compatible receiver or home automation system.

Picture quality is outstanding. We connected the player to our 40in Sony Bravia Full HD display and a Yamaha surround receiver and were blown away with the picture and audio quality. This player scored a 10 out of 10 on our Silicon Optix test discs with near perfect digital noise reduction, jaggie smoothing and lack of resolution loss. The picture was clear, life-like and noticeably free of visible artefacts. Anyone who thinks all Blu-ray players are the same will be in for a shock when they compare the picture from the BD-S2900 to a mass market player. Even upscaled DVDs look great.

Unfortunately, this player, being Yamaha's first Blu-ray unit, does suffer from some limitations. It lacks an Ethernet port and doesn't support BD-Live (profile 2.0) content. DVD playback is region locked and there is no support for streaming media, DivX or YouTube. The only concession to features is an SD slot for playback of AVCHD camcorder movies.

Nevertheless, if you are looking for a high-quality player and have the cash, you won't be disappointed.

David Neiger

8/10 Samsung Series 8

Plasma's not dead yet.

Samsung
www.samsung.com/au
$4,299

Good value; great picture quality; good networking features.

Very poor speakers; power-hungry.

SPECIAL FEATURES
2GB RAM
Full HD
Ethernet connectivity

LCD TV quality has improved so much that many said the writing was on the wall for plasma. But Samsung and Panasonic have recently released new ranges that challenge the notion that plasma is bulky and power-hungry. The Series 8 is under 3cm thick and uses half the power of the 2007 range.

Series 8 is Samsung's highest-end plasma and comes in 50in and 58in sizes (the 58in model costs $5,999). It's refreshing being able to lift a 50in TV out of its box on your own (it's only 26.1kg) and you can conceivably mount it on a wall without serious reinforcement.

The TV is stylish enough for any living room, with a clear perspex layer surrounding a thicker 'Platinum Black Crystal Design' (aka. glossy black plastic) bezel. It comes with an aluminium stand that swivels 20° in both directions. The remote is responsive, feature-packed and easy to use.

In terms of picture quality, we were very impressed at all levels. Colours were always incredibly vibrant, while flesh tones were accurate and natural on the glossy screen. Blacks were as black as the bezel and the 3,000,000:1-rated dynamic contrast ratio meant that detail was always present in dark and bright areas. Occasionally colours become too in-your-face (great for gaming!), but extensive picture adjustment controls help tailor things to taste.

There were virtually no jaggies in any HD playback and, so long as the SD content hadn't been badly up-scaled by the broadcaster, there were very few in SD too. It was great for sport, so long as it was viewed in HD. As with other panels this size, there's little they can do to rescue iffy SD broadcasts.

Watching the super high-quality *Dark Knight* Blu-ray at 1080p/24 was an absolute joy, with the high contrast making a better fist of dark scenes than any LCD screen we've seen. The 100MHz 'Motion Flow' certainly helps smooth out panning shots, but it's not quite as good as examples we've seen on Sony's TVs.

The HQV quality benchmark confirmed all of the above: noise reduction while retaining detail was superb and jaggies were virtually absent. There were some issues with de-interlacing whereby super-fine detail in test patterns could suffer banding or artefacts, but this is minimal in the real world and we weren't bothered by it.

As with all top Samsungs the features are packed in. A network port lets you access your home network using DLNA and it can play movies and photos through two USB ports. It also has 2GB of built-in RAM and plays YouTube straight from the internet.

Our main concern is the speakers: it has two 15W speakers and a subwoofer, but the sound was poor and our test unit hummed when quiet. There was virtually no bass whatsoever and everything sounded tinny and devoid of body. Don't buy this without separate speakers.

Connectivity is good with four DVI ports provided. There's also component, composite, VGA and optical S/PDIF.

LCD TVs tend to use much less power and provide more-neutral day-to-day images, but this plasma can deliver a more-vibrant, in-your-face picture. Image burn is less of an issue these days but brightness will still degrade over years. However, in terms of image quality and features, it's a winner at a good price. Just note that you'll need additional speakers with this model and that the fatter Series 6 plasma is virtually identical but costs $1,000 less.

Nick Ross

8/10

Sanyo Xacti VPC-CG10

What Xactly is it?

Sanyo Australia
www.sanyo.com.au
$549

Easy to learn and use; excellent LCD.

Zoom button; afterthought lens cap; shape and grip.

SPECIAL FEATURES
Different form factor
Dual-purpose camera

For some years now, Sanyo has persisted in not following the pack with its camcorders. Instead of staying with the tried-and-true "barrel" shape, the Xacti range has opted for a pistol grip design. Also, this model is what Sanyo is calling a 'dual' camera; whilst it will shoot hi-def video using MPEG-4 in 1,080-x-720 resolution, it also takes a better than half-decent still at 3,648 x 2,736 (approx 10MP). Stability is electronic only, zoom is maximum 5x optical (12x digital for what it's worth) and low light, as is common for this type of camera, is a miserable 16 lux.

The CCD image sensor is small, as you'd expect in a camera of this type, but the images are more than acceptable. The lens is a nice wide 6.8mm ~ 34mm, but I have to say the button to shift from one extreme of zoom to the other could be in a better position.

Connectivity options are minimal: a single micro USB port lets you hook up the VPC-CG10 to your computer for downloading images and video, and the same port lets you plug in an RGB cable for viewing video on an external TV. Power is by an inbuilt battery or there is an optional external power pack. Sanyo reckons you'll get 180 still images or 70 minutes of HD video on a single charge.

Data storage is to an internal 40MB, and a further maximum 32GB can be added via SD memory card.

The flip out 3in LCD is very good. Even outside in bright sunlight it was quiet viewable and not overly bright or reflective. Downsides? Not too many. Apart from the zoom/wide button and the feeling the 'grip' part could be a little meatier and less slippery, and that the lens cap is a push-in type and looks more like an afterthought, the Xacti has been designed to do a job, which it does with aplomb.

David Hague

Sanyo breaks with traditional camcorder design again with its Xacti range of cameras.

8/10

Nikon D60

Ditch the compact and get the sportscar.

Nikon
www.nikon.com.au
$799 (Body only)

Easy to learn and use; value for money; paper manual.

Lens is extra; no tilt on viewfinder.

SPECIAL FEATURES
10.7 megapixels
½ second startup
LCD display

If you're looking to buy a digital still camera, and want to go a little upmarket, consider the photographic possibilities on offer with a digital single lens reflex camera (DSLR). Take for example, the Nikon D60.

Here, you get 10.7MP and a start-up time of a less-than-slouchy 0.19 seconds. The viewing monitor is 2.5in and, of course, there is a viewfinder. Storage is to a Secure Digital card (SD).

With an 18-55mm lens fitted the D60 is nicely balanced in the hand, and the controls fall into place. Major functions are catered for by a rotary dial, with an exposure compensation and back light button. In front is the shutter release and power switch.

On the rear and to the left of the LCD are separate controls for playback, menu, on-screen help and thumbnail playback. Major controls for the flash, lens release, and self timer are on the front left of the body, and finally, output ports for video and USB are under a flap on the left side of the main body. No touchscreen nonsense here!

For those that prefer to go automatic, there are eight separate modes to play with, but truly, the fun of a DSLR is playing with manual settings in order to get different effects. In this area, may I suggest the one functionality that will be your closest companion and best friend: the histogram. Learn how to use this and the rest will fall into place. The other thing that can be confusing for the beginner is the massive amount of information that is available in the LCD viewing panel.

However, in conjunction with the on-screen help and the supplied manual, Nikon has done a very good job of de-mystifying the world of DSLR, and the D60 in particular, enabling you to come up to speed as fast as possible. But again I stress that a lot of the fun is trying settings and seeing what happens! All in all, this is a great camera to learn the basics and nuances of DSLR cameras, and at a pinch, even a nice little back up camera for a pro or super enthusiast.

David Hague

SAMSUNG recommends Windows Vista® Home Premium

Windows Vista
Home Premium
Watch movies and listen to music with Genuine Windows Vista® Home Premium

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it's time to cut the cord

Samsung X460 Notebook

Enjoy a longer battery-powered performance of up to 5 hours*. The energy-efficient LED display and optimised performance together with Samsung's class-leading engineering all help you get more battery time so you're ready to go anywhere and do anything.

samsung.com.au/notebooks

Lighter Brighter Longer

SAMSUNG

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THE GOOD GUYS DISCOUNT WAREHOUSES

MYER ismystore

BING LEE Everything's Negotiable

*Battery life based on Battery Mark test scores that will vary based on configuration, operating conditions & settings.

TOUCHSCREEN SHOOTOUT

The iPhone may have revolutionised touchscreen smartphones, but it's not the only game in town. **Jenneth Orantia** checks out the competition.

This year is shaping up to be the pivotal year in which vendors go beyond paying mere lip service to touch interfaces, and will make touchscreens the de facto standard for phones that occupy the higher end of the market. Touchscreens are here and they're here to stay.

Not all touchscreens are created equal. The most common type of touchscreen uses a resistive panel that recognises pressure from anything that taps against the screen — typically a stylus. The less common touchscreen technology is a capacitive panel — the sort made famous by the Apple iPhone. Such displays only recognise input from fingertips, using the electricity conducted by the human body.

The upshot of a capacitive panel is that it's typically more responsive, making input feel a lot more natural and free-flowing than having to tap away with a stylus. Capacitive screens also have the benefit of supporting multi-touch gestures, which phones like the Apple iPhone, LG Arena, and the recently released Palm Pre have taken advantage of.

UNDER REVIEW

Acer DX900

Apple iPhone 3G

HTC Magic

HTC Touch Diamond 2

LG Arena KM900

Motorola MOTOSURF A3100

Nokia 5800 XpressMusic

Nokia N97

Samsung Ultra Touch (S8300)

What do I look for?

In a good smartphone. . .

Phones are highly subjective devices, so the features to look out for really depend on how you'll mainly be using it. If you're a portable media buff, you'd look for lots of built-in storage, a 3.5mm audio jack, and support for a wide number of audio and video codecs, whereas if you write a lot of text messages, a hardware keyboard or good software keyboard would be a top priority.

APP STORES

All phones will come with a media player, web browser and email client, but if you're after richer applications and games, check that the phone offers an app store.

SCREEN

Screen size is an obvious spec to look at, but the display resolution actually has more bearing on how much can fit on the screen at any one time — expect 240 x 320 at an absolute minimum.

STORAGE

If you're big on music and movies, you should look for a phone with at least 8GB of built-in flash storage. Ideally, it should also have a memory card slot for adding more storage on top of that.

BATTERY

All but the iPhone offer removable batteries, but the size varies between phones. If you're a power user, opt for a phone with a battery capacity of 1200mAh or greater.

INTERFACE

Phones with more features also tend to have more complex menu systems, so it's worth giving the phone a test run to make sure you're comfortable with its user interface.

For phones without a separate keypad, the hardest part of moving to a touchscreen...
...Is adjusting to text entry via an on-screen keyboard.

BUTTONS OR TOUCH

Going from hardware controls and buttons to a full touch interface can take a little while to get used to, but eliminating the keypad (in most cases) allows for a larger display, which in turn means more room for web browsing, watching videos and running apps and games. Compared to non-touchscreen phones, which typically have displays between 1.8 and 2.2in, touchscreen handsets offer screen sizes between 2.8 and 4in.

For phones that don't have a separate keypad or keyboard, the hardest part about moving to a touchscreen is adjusting to text entry via an on-screen keyboard. Some phones — notably the Apple iPhone, HTC Magic and HTC Touch Diamond2 — have a better system than others, and it's an important consideration if you're going to be writing a lot of email and text messages from the device.

Acer DX900

@ www.acer.com.au

✔ Dual-SIM; a solid handset to hold.

✖ Battery drain is horrible; screen washes out in direct sunlight.

The DX900 is a no-visual-frills touchscreen smartphone with a five-way selector and curiously small call/cancel buttons at its base. A stylus is tucked away for more discrete screen stabbing. The VGA display screen is clear enough but suffers from a lack of touch precision — you'll need to keep the stylus handy — and isn't particularly good in direct sunlight.

On the hardware front, the DX900 runs Windows Mobile 6.1 with a custom shell on top of it. We were told the software on our test unit wasn't completely finalised for the Australian market, so it may change subtly, but like most wrappers on top of Windows Mobile, it's a fair bit better than trying to kludge through Mobile itself. Onboard storage is on the low side but at least you can whack a MicroSD card in to make up for that. Wirelessly the DX900 supports Wi-Fi, Bluetooth and GSM/3G (850/900/1800/1,900MHz and 850/1,900/2,100MHz respectively), giving it plenty of traction with both global and Australian carriers. It's also GPS-capable, but the easily washed-out screen doesn't make it ideal for this application. The hook with the DX900 is the inclusion of two SIM card slots, one of which is 3G-capable. This has some neat potential if you've got SIMs with different tariffs or even different coverage maps, or want to constrain spending on a particular plan. Switching between SIMs was seamless when calling from the dial pad, but a bit quirky if using a contacts list, as it defaulted to Sim1 all the time.

The DX900's biggest selling point is also its biggest drawback, however, as we constantly struggled to get through a full day's work before the battery conked out on us, even on only moderate usage. Running two SIM cards concurrently uses up a lot more power, but we wish Acer had really pumped up the battery capacity to compensate. As such, the DX900 is a lot better in theory than practice, and only those who are able to guarantee a midday recharge should consider it.

Alex Kidman

Apple iPhone 3G

@ www.apple.com/au

✔ Free OS 3.0 update; cheaper than the new model; still better than others.

✖ Mediocre battery life; sub-standard camera; no memory expansion slot.

As expected, Apple released the updated iPhone 3G S just as we went to press. The good news for existing iPhone 3G users is that many of the improvements in the new model are available by applying the free iPhone OS 3.0 update via iTunes, adding long-sought-after features like MMS, cut, copy and paste support, Bluetooth stereo and internet tethering. Other cool features include a new Voice Memos application, a 'shake to shuffle' feature in the iPod music player, and a Mac OS X-style Spotlight search that you can access from the main menu by swiping to the left.

More exciting, though, are the upcoming third-party applications that'll take advantage of the iPhone OS 3.0's new APIs, including push notifications (so you can be alerted of a new instant message, even if the program isn't running in the foreground) and a maps API that enables turn-by-turn navigation — TomTom has already announced an iPhone navigation application that takes advantage of this new functionality.

The OS 3.0 update has made the iPhone that much more compelling. It still offers the best web browser, best touch interface and best app store on the market, and while many vendors have tried to mimic the iPhone's hardware design in the two years since the first one came out, it's still arguably the best looking smartphone available.

Unfortunately, the OS 3.0 update doesn't do anything to help the iPhone 3G's mediocre battery life. The downside of having a smartphone that does so much so well is that you're likely to use it a lot more throughout the day, and the iPhone 3G's battery will barely scrape through a 24-hour period. The iPhone 3G S promises twice as much battery life, along with other features like 32GB of storage, a 3.2-megapixel auto-focus camera with video recording, 7.2Mbit/s HSDPA and voice control.

HTC Magic

@ www.htc.com/au

✔ Industry-leading notification system; supports multi-tasking; design.

✖ Proprietary headphone jack; limited paid apps and games in Android Market.

HTC's second stab at an Android smartphone ditches the slide-out keyboard and chunky form factor for a svelte design that'll appeal to everyday users. The Android operating system offers tight integration with Google services like Gmail and Google Calendar, and once you enter your Google account details, all of your email, contacts and appointments are automatically synchronised to the phone.

Also on board are various other Google apps like YouTube, Google Talk, Google Maps and Google Search. Downloading more software is easily accomplished through the on-board Android Market, but it's not as sophisticated as the other app stores. You have to scroll through dozens of themes, ringtones and icon packs to find the actual software, and most of the good paid apps are only available overseas. Plus, you're limited to installing programs to main memory only, even with the bundled 2GB microSD card inserted.

One of the areas that Android truly excels is its notification system. Any new activity, whether it's a new message, missed call, or IM, appears as an icon in the top left of the screen; pulling down on that area with your finger reveals the notification window, where you can see all of the notifications in detail. We also like the three home screens, which you can personalise with widgets, photo speed dials, program shortcuts, bookmarks and playlists.

The HTC Magic is fairly easy to use once you master all the controls. A trackball below the screen lets you scroll through icons and web pages, but you can just as easily use your finger on the responsive 3.2in 480 x 320 touchscreen, which uses the same capacitive technology as the iPhone. The Home, Menu, Back and Search buttons make it easy to move between programs and the home screen, and you can also press and hold on the Home button to bring up the list of running applications.

HTC Touch Diamond2

@ www.htc.com/au

✔ Stylish design; slick user interface; nifty combined messaging feature.

✖ Proprietary headphone jack; tinny speakers; limited on-board memory.

In the movie world, sequels are never as good as the original. Thankfully, the same doesn't apply to technology. The Touch Diamond2 improves on almost all the features of its predecessor, with a larger 3.2in WVGA display, faster performance, microSD slot, and a five-megapixel camera.

HTC continues its tradition of customising Windows Mobile 6.1 with the slick TouchFLO 3D front-end that almost completely eliminates the stock user interface. As well as the standard collection of animated homescreens, the Start menu has disappeared completely in favour of a customisable program launcher, and there's a new notifications window where new text messages, IMs, emails and missed calls are collectively displayed on one screen — not unlike the notification system in Android.

We also get a sense of déjà vu from the Touch Diamond2's expanded Contacts view. Every contact now includes three tabs for viewing all of the text messages, email and phone calls you've exchanged with that person, bringing to mind the Combined Messaging feature in the Palm Pre. The extra .4 inches of screen space over the previous Diamond has made a big difference to the usability of the software keyboard. It now takes up only half the screen and uses a good mix of error correction and predictive text to keep typos to a minimum. As with all Windows Mobile phones, the touchscreen uses a stylus-friendly resistive panel, but all of the touch enhancements HTC has added means there aren't many instances where you'll need to use the stylus.

As far as the hardware goes, HTC has added a zoom bar below the screen for making it easy to zoom in and out of web pages and photos. The headset jack is still the same ExtUSB connector, but the odd ridged back of the original Diamond has been replaced with a smooth glossy plate that feels great in the hand.

LG Arena KM900

@ www.lge.com.au

✔ Powerful multimedia features; flashy user interface.

✖ Sluggish text entry; have to re-encode DivX files; inefficient navigation.

LG's latest handset has a lot to get portable media buffs excited. There's 8GB of flash storage (expandable with a microSD card), a high-res 480 x 800 three-inch screen, DivX certification, a 3.5mm headphone jack with Dolby Mobile audio, powerful stereo speakers and an FM transmitter. LG has also tried to out-class the iPhone with its snazzy new S-Class user interface. You can navigate between the four different homescreens (widgets, contacts, multimedia and shortcuts) by rotating a 3D cube with your finger, browse through contacts and multimedia using 'elastic lists' that you flip through like a Rolodex, and change settings on the five-megapixel auto-focus camera using an intuitive on-screen dial.

Backing all the eye candy is a dedicated AMD graphics processor — the first of its kind we've seen in a mobile phone. The 3D animations are fairly smooth, but the only problem is that it takes twice as long to actually do anything. Finding an album to play using the 3D reel is fun the first couple of times you do it, but after a while it becomes too slow and imprecise to find what you're looking for quickly. There are other shortcomings that amount to a frustrating experience overall. The software keyboard (alphanumeric in portrait view and QWERTY in landscape) takes its own sweet time to register input, so you have to type slowly or it'll miss a lot of the keys that you enter. The touchscreen supports multi-touch gestures for zooming in and out of web pages and photos, but it's nowhere near as fast or responsive as the iPhone's.

Also, many of the Arena's features aren't as impressive as they look on paper. For some reason, the web browser displays web pages at a much lower resolution than the default 800 x 480, which means you have to zoom all the way in to be able to read anything — and pages load extremely slowly, besides. Likewise, DivX and XviD files have to be re-encoded to 320 x 240 before the Arena will play them.

Motorola MOTOSURF A3100

@ www.telstra.com.au

✔ Excellent bundled software; compact form factor.

✖ Poor screen; limited on-board memory; no auto-correct on the keyboard.

After a steady diet of Windows Mobile phones from HTC, it's a refreshing change to see the OS offered by other vendors. The MOTOSURF A3100 is the first time Motorola has used the touchscreen version of the operating system, but while there are a few nice tweaks here and there, we didn't find anything exceptionally compelling to recommend it over other touchscreen handsets on the market.

The MOTOSURF A3100's rounded corners and compact footprint make it a comfortable fit in the hand, but the glossy black on chrome design comes across as a little retro. Also old-fashioned — and not in a good way — is the 2.8in touchscreen display. We can forgive its resistive touch layer and limited 64k colour support, and even look the other way when it comes to the dinky 240 x 320-pixel resolution, but the extremely limited viewing angles — you can only see the display clearly when viewing it head-on — harks back to devices that came out three years ago. Following HTC's lead, Motorola has customised Windows Mobile 6.1 to make it easier — and prettier — to navigate through the system. A slick animated carousel on the home screen reminds us more than a little of HTC's TouchFLO interface, letting you move between different homescreens like the photo speed dials, weather forecast, multimedia and application shortcuts. Telstra, the exclusive distributor of the phone, has also developed a similar front-end that adds a small selection of widgets to the homescreen.

Text entry is accomplished using the custom xt9 software keyboard; it's large enough to use without the stylus, but it's slow and error prone as there's no auto-correct feature. The Windows Marketplace app store hasn't yet launched, but you can download and install apps from any web site that offers them. Motorola has included a great selection of software to get you started, including Facebook, YouTube, Opera Mobile 9.5 and Documents To Go.

Nokia 5800 XpressMusic

@ www.nokia.com.au

✔ Unlimited music downloads, bundled 8GB microSD card; powerful speakers.

✖ Fiddly text input; plain user interface; uninspiring hardware design.

Since our initial review of the Nokia 5800 XpressMusic, it's undergone a few welcome improvements. A firmware update has significantly improved system performance, the Nokia Messaging service for push email became available, and the Ovi store went live for purchasing apps, games and ringtones.

While the N97 is marketed as more high-end, the 5800 XpressMusic can actually access more services. Neither of the handsets support Nokia's N-Gage gaming service, but the 5800 gets the lead by offering a 12- or 18-month Comes with Music subscription for unlimited downloads from the Nokia Music Store, and for now, it's the only one of the two that supports Nokia Messaging.

The cost of the Comes with Music subscription is factored into the handset's price, and it's good to know where at least some of its high pricetag goes — especially given the 5800's unremarkable hardware design. In contrast to most of the other mobiles in this feature, there aren't any fancy visuals in the user interface — it's essentially the same Series 60 operating system found on other Nokia smartphones and enabled for touch operation. Hardly any of the apps support kinetic scrolling, so you'll have to use the supplied stylus or the tip of your fingernail on the 3.2in touchscreen to tap and drag on the skinny scrollbars. You can pick between handwriting recognition, an alphanumeric keypad or a QWERTY keyboard for text entry, but all of them are a pain to use.

As expected, the 5800 works well for multimedia. There's a dedicated Media Bar key on the front for quick access to the multimedia applications, the stereo speakers have the most powerful sound we've heard on a mobile, and there's a 3.5mm headphone jack that doubles as a TV out. Internal memory is a measly 81MB, but it's supplemented by an 8GB microSD card.

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APC MAGAZINE HIGHLY RECOMMENDED

PLAN

8/10

Nokia N97

@ www.nokia.com.au

✔ Dynamic widgets; 32GB of storage (expandable); large hi-res screen.

✖ Fiddly keyboard; no stylus holder; expensive third-party apps

The N97 is one of the most hotly-anticipated phones of the year, and with good reason. Along with the newly-hatched iPhone 3G S, it's the only mobile with 32GB of built-in flash storage, and it one-ups Apple's offering with microSD expansion (up to 16GB) as well. Its form factor is another aspect that's got power users excited. The front features a large 3.5in touchscreen with a 640 x 360-pixel resolution and 16:9 aspect ratio, and a sliding panel behind it reveals a full QWERTY keyboard. The screen uses a stylus-friendly resistive panel, but there's no holder to keep the stylus in; you have to dangle it off a lanyard.

The keyboard is a nice addition for text-heavy users, but we were let down by its tactile feedback. The keys are large and comfortably-spaced, but they're a little too flat for our liking. The layout is also problematic — the space bar is small and shunted off to the right hand side, and commonly-used punctuation symbols like the comma, apostrophe and question mark don't have their own keys.

The N97 uses the same Series 60 5th Edition operating system that we first saw on the 5800 XpressMusic, with the addition of widgets on the home screen. You can configure up to six widgets that update in real-time, including Facebook, Accuweather, AP News and Contacts.

The Ovi store includes apps, games, themes and multimedia, and it's the only smartphone store that supports payment through your carrier (in addition to credit card). It's not as easy to navigate as the other stores, but our main gripe is how expensive the apps are. While you can get most of the good apps for the iPhone for under $10, we found programs of equal quality in the Ovi store for $16 and upwards.

The beefy 1500mAh battery should be more than enough to get you through the day. Like the 5800, it doesn't come with Nokia's N-Gage gaming platform, but we were disappointed to find it doesn't have a Comes with Music subscription.

- HIGH-QUALITY 8MP CAMERA
- VIDEO RECORDING
- CALL FAKER
- AMOLED SCREEN

APC MAGAZINE HIGHLY RECOMMENDED

$749

8/10

Samsung Ultra Touch (S8300)

@ www.samsung.com.au

✔ Great 8MP camera; gorgeous AMOLED screen; plays DivX without conversion.

✖ Laggy interface; only 80MB internal memory; no 3.5mm audio jack

Like the LG Arena, the Ultra Touch isn't a smartphone per se, so software is limited to whatever's on board and whatever Java apps you can get your hands on (not many). Still, it offers more than enough features to justify its high price tag.

Graphics on the 2.8in 240 x 400 AMOLED are sharp enough to cut your teeth on, and the viewing angles are practically unlimited. We like that it's got both a touchscreen and a keypad while still retaining a slim form factor — only half a millimetre thicker than the iPhone 3G. That said, the quality of the input could be better. Both touchscreen and keypad input is laggy, and the lack of a navigation pad and delete button makes it difficult to enter text.

The eight-megapixel camera isn't just a case of more megapixels on a sub-par sensor — it's actually one of the best we've tested on a phone. Photos in good lighting look great (if a little soft) with lovely, natural colours and lots of detail. Quality from the video camera is also impressive; it can shoot video up to 720 x 480, and it doesn't show as many compression artefacts as we're used to seeing on a cameraphone.

Aside from a handful of widgets that you can configure on the home screen, the Ultra Touch is basic when it comes to on-board software save for the cool 'fake call' feature.

This lets you initiate an incoming call by pressing the lower volume key. You can even pre-record a message to make it that much more believable.

The proprietary headphone jack is annoying, but there's a 3.5mm adapter in the box, and the external speakers pack a punch thanks to the SRS virtual surround audio. The Ultra Touch offers DivX/XviD, WMV9 and MPEG-4 compatibility out of the box, and unlike the LG Arena, you don't have to convert the videos to a particular resolution.

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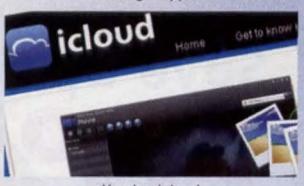
UNDER REVIEW

Citrix GoToMyPC

Microsoft Live Mesh

Google Apps



Xcerion icloud

WORKING IN THE CLOUDS

Accessing personal data via the 'cloud' is becoming an increasingly easy and commonplace method of computing. **Nick Race** sees the silver lining.

Sometimes it's just not practical to take your PC or notebook with you. Whether it's taking a holiday and leaving the notebook behind, or if you're caught short at a remote office or meeting, or just couldn't be bothered dragging that monster 5kg notebook around every day, there are those situations where you don't want to (or can't) bring your personal computer along.

Historically, your options were limited; either loading up a webmail account with all your data and hoping it hasn't been blocked on the network you find yourself on, or uploading everything onto an FTP server then wrestling with FTP clients at your destination. There's always the good old USB key option as well, but when I consider how often I lose them, the thought of putting personal data on one gives me cold shivers.

We've laid out a few options here for accessing your personal data on the road. From Citrix's GoToMyPC, a full functionality remote desktop, to the more basic Live Mesh, which can be used in a few ways, to bringing the whole kit and kaboodle online with Google Apps or icloud from Xcerion.

The key concern with keeping your data online (and in the hands of another party) is just how much you trust them. Always check terms and conditions, and at the same time, consider your data on someone else's server as not being private and confidential. Also, keep in mind that your entire data store is then only as secure as your newest password.

Citrix GoToMyPC

@ www.gotomypc.com

✔ Full desktop remote access; little security compromise.

✖ Heavily dependent on internet connection.

GoToMyPC is a comprehensive remote desktop service run by Citrix. By running a software client on the "target" PC, you can then access it from a web browser remotely. In practice, it works great, though it's heavily dependent on the speed and reliability of your internet access in the remote location. As a remote desktop solution, it doesn't offer any storage, and if your home connection goes down or the PC is turned off, then you're out of luck.

To make things simple, GoToMyPC uses ports 80 and 443 (HTTP and SSL), which are nearly always left open on networks to allow web access to users. This can be changed, but will obviously need to be done in advance if you need to do some firewall dodging.

You don't require a static IP to use GoToMyPC either, as the client on your home PC acts as a login to the GoToMyPC network to give its location. If the PC is on and the network is up, then you can connect by going to the GoToMyPC web site and logging in. The flip side of this arrangement is that if the GoToMyPC web site is inaccessible for any reason, then you can't connect. Though with extended use, we haven't seen any evidence that this is a genuine concern.

For getting actual work done, GoToMyPC is *the* killer app. With a decent internet connection, working on your desktop is more than feasible. This allows you to access your own applications and data as if you were at home and has the added bonus security of not allowing any of your data to leave your PC.

The downside is the speed. If you've ever used a remote desktop application, especially over the internet, then the honey-drip slowness of the experience can be a little frustrating, especially if you only want to get something small done quickly.

GoToMyPC only works with a Windows computer as a a host, but the remote computer can be anything that can run a full Java stack. Windows, Linux, Windows Mobile and Mac OS are all able to connect.

Microsoft Live Mesh

@ www.mesh.live.com

✔ All your files on every PC you use; also available via web

✖ No tools to edit or work with your data

Live Mesh is the solution that gets the most frequent use on this writer's PCs. It's a combination of tools, including online storage and remote access that is a little more complex (and infinitely more useful) than it looks on the box. At the moment it's a free service (while it's in Beta).

Live Mesh is built around a set of devices, including your own PC at home, any client PCs you wish to "mesh" into a network and a web-based virtual desktop. The idea is to let files be easily shared between the lot of them, and in this it works well.

You create folders that are synchronised between different devices (the above-mentioned PCs and the virtual desktop) making them available wherever you can log in. Failing that, you can use the Live Mesh client to initiate a remote desktop connection to any of the devices in your Mesh.

It's not all roses, however, as you need to be able to install a client for full functionality on your remote PC, making it almost useless in a net cafe or on a PC you don't trust. In that case you can log in to the web environment to download files stored in your Mesh; but it doesn't let you edit them on the web at all; you're reliant on the applications available on the PC you're working at. As the files are stored locally on each system and updated when an internet connection is available, if you're without a connection, you can still work.

Where it does come in handy is when you move between different PCs regularly; for example, a desktop at home and at work, or a notebook on the move. It keeps the files up to date between all the different devices, so you're always working with the most up-to-date information. You can also invite other people to access your Mesh folders, just to view or full access as you require.

The client works with Windows XP and Vista, as well as a beta client for Mac OS.

Google apps
Software-as-a-service for business email, information sharing and securi
Home
Messaging
Collaboration
Latest information
Getting help
Customer stories
search
Messaging
Gmail and Google Calendar keep employees connected and save your company your savings
Collaboration
Google Docs, Google Video and Google Sites complement traditional office so
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9
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Google Apps

@ www.google.com/a

✔ All tools provided: email, word processing, spreadsheets, calendar.

✖ Doesn't cater for unsupported files.

Google Apps really is the office in a box. For $50 a year, you can access your own email, using the Google Mail interface with your own domain name (which you provide), plus the use of Google Docs, Sites, Calendar and anything else Google throws in.

Apps is a first step if you really want to leap in to the cloud, and lets you work almost entirely online, as long as your requirements are quite basic. Google's Mail is well regarded, and using it with your own domain name lets you add a little more professionalism than the usual @gmail.com address. Google sites allows you to create customised public and private basic web sites and wikis, also under your own domain name, while Calendar lets you keep yourself organised when on the go.

The strength of Google Apps, and also available for free without the domain name support, is Google Docs. Docs lets you create, edit, share and store work documents entirely through a browser. There's support for word processing documents, spreadsheets, basic presentations and Q&A style forms for gathering data.

The plus sides to using Apps or just Docs is that your data is available everywhere you can get an internet connection; and the down side is that plain document or file storage is a no go. If someone sends you a presentation, you can automatically feed it in to Docs and work with it, but the moment it's a JPG image, or out of the realm of Google support, you need to download it from your mail, work on it, then email it back to yourself to keep it stored. Not very graceful by any means, though Google's search on your inbox makes it easier to deal with. Fitting other documents or types of files can be a real challenge, however.

If you're a Google Mail user, then shifting sideways to using Google Docs can be a boon; but for a full working environment, it doesn't really cut the mustard. However, it is completely portable and doesn't rely on anything except a broswer.

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Get to know icloud
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News
Q&A
WebDAV
No computer?
No problem!
Get your very own computer online
Complete with desktop, mail, applications, up to 50GB storage, and much more.
Get to know icloud
Discover
the icloud way of listening, watching, and sharing photos, music and videos
Watch the icloud
DEMO VIDEO
"with icloud I have a safe place to store all my family's photos"
Equipped with an easy file manager and a photo application, icloud lets Marcus organize photos and share slideshows with his friends and relatives. His favorite icloud application is Photo and sharing photos friends.
FREE
APC MAGAZINE
apc
HIGHLY RECOMMENDED
InformationWeek
eWEEK
8
10

Xcerion icloud

@ www.icloud.com

✔ Full desktop experience on the web; plenty of apps and usage models.

✖ Very dependent on a good internet connection; slightly buggy with Firefox.

What if you want to leave everything behind altogether and just work with your browser? icloud looks like the thing for you. It's a beta online desktop environment from Xcerion, and it really is an entire PC on the net. Logging in via a browser is the only supported method; and then your full computing environment is available wherever you go.

Unlike Live Mesh, which only lets you see the files stored in its "desktop", and Google Docs which lets you see and edit a very specific number of file types, icloud is wide open to development in working with anything, from movies to word processing and anything in between.

Any file can be uploaded, even just for storage purposes, and icloud lets you work with a wide variety of tasks. Out of the box it includes software for productivity, including a money manager, games, multimedia, entertainment, instant messaging, your own icloud.com email address (with remote IMAP access, I might add), an XML editor and an application designer. If you can write XML then you can code your own apps for your personal desktop.

The down sides are that your data is now completely out of your control; including the applications you use to create it. And, being an online experience, it's not the fastest way to run your primary computing environment — if you're on a limited connection, or without a connection at all, then you're not going to be able to function.

Upsides are that you have *everything* available wherever you go, and all by only carrying a username and password in your head. You have a full production environment whenever you open a browser. You can't get much more convenient than that.

Having launched in July, the iCloud experience is still quite new, though our testing showed it quite stable and reasonably fast. (Editing a file is perhaps not as fast as Google Docs.) It's quite heavily dependent on the speed and latency of your connection. At the moment it's free so take a look. If anything this may be the future of the desktop.

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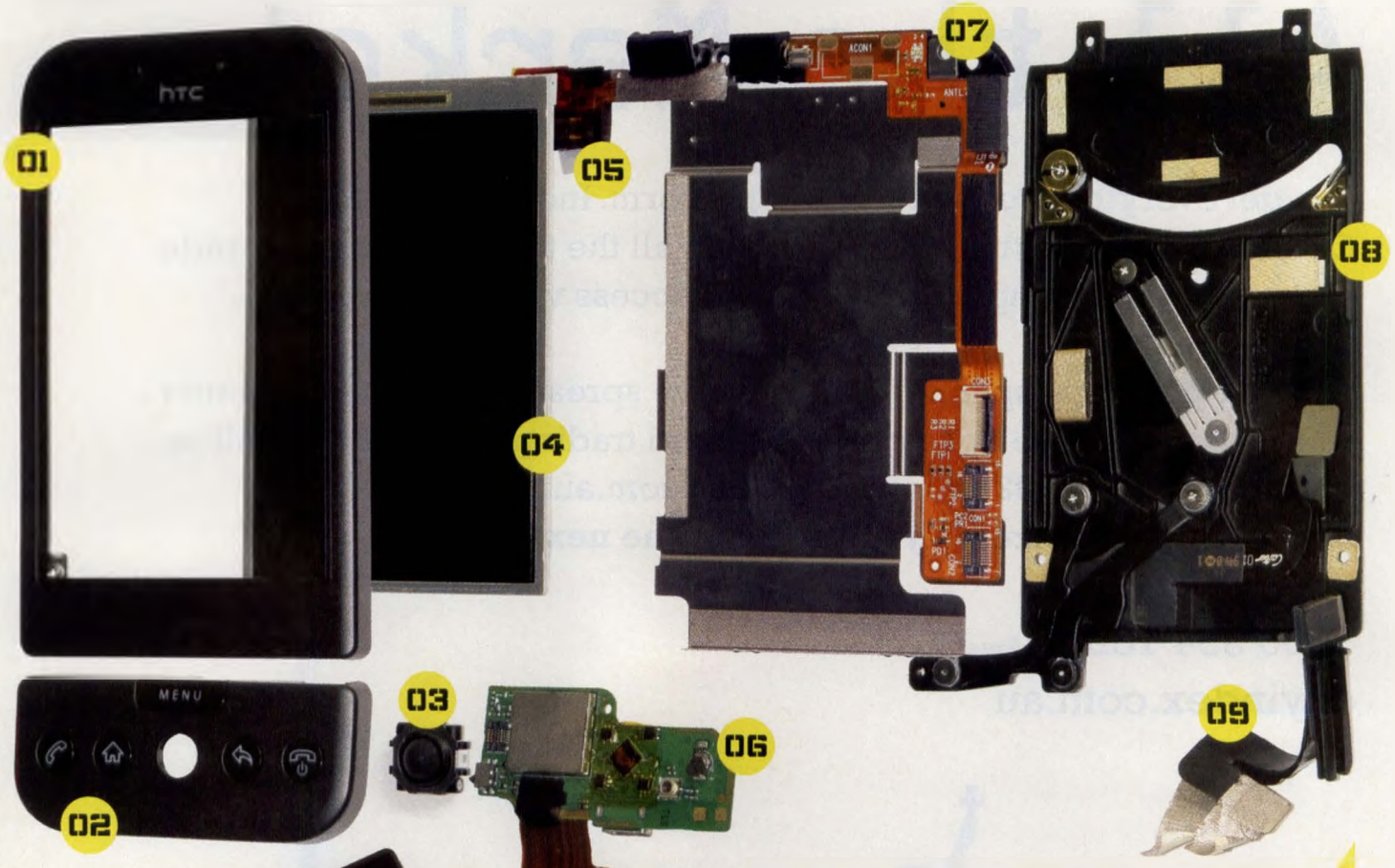
exploding tech

NO. 37 This month we're exploding the HTC Dream smartphone: The first smartphone available locally to use the Android operating system.



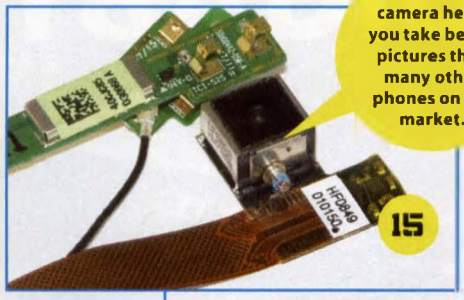
The Dream's slide-out 5-row QWERTY keyboard goes a long way to making the web more accessible.

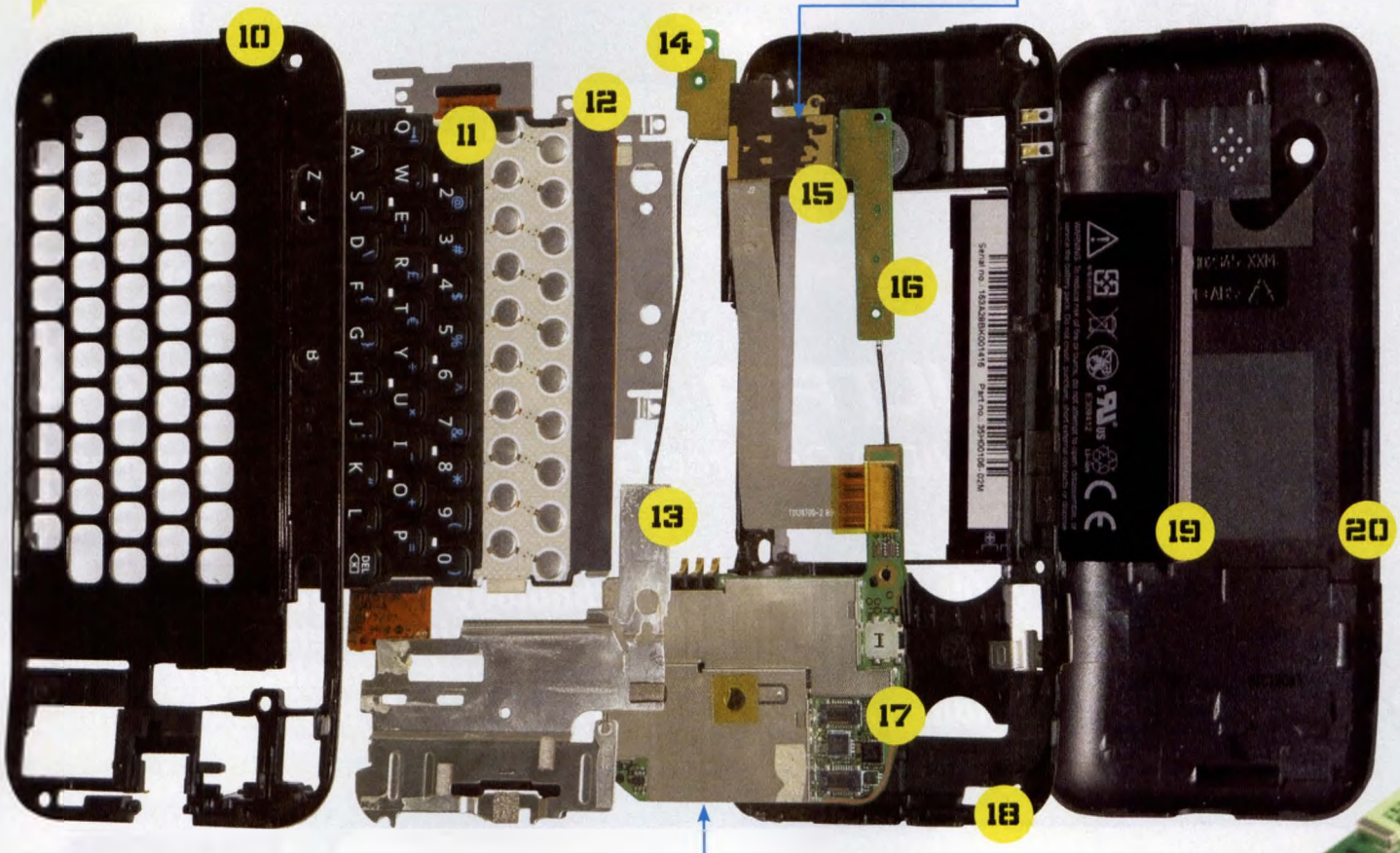
HTC Dream

The first Android-powered mobile phone released in Australia. Available through Optus, the HTC Dream combines full touch-screen functionality and a QWERTY keyboard with a mobile web experience that includes the popular Google products Google Maps with StreetView, Gmail, YouTube and others. The HTC Dream's large 3.3in display slides open to reveal a full QWERTY keyboard, a must for online communication or using the phone's email, IM and mobile messaging capabilities. As another option for accessing the device, the HTC Dream comes equipped with a convenient trackball for one-handed navigation. With one-click search, HTC Dream users can search for relevant information with the touch of a finger. A full HTML web browser allows users to see any web page the way it was designed to be seen and then easily zoom in to expand any section. With built-in support for Optus's 3.5G network as well as Wi-Fi, the HTC Dream can connect to high-speed data connections for surfing the web and downloading information quickly and effortlessly.

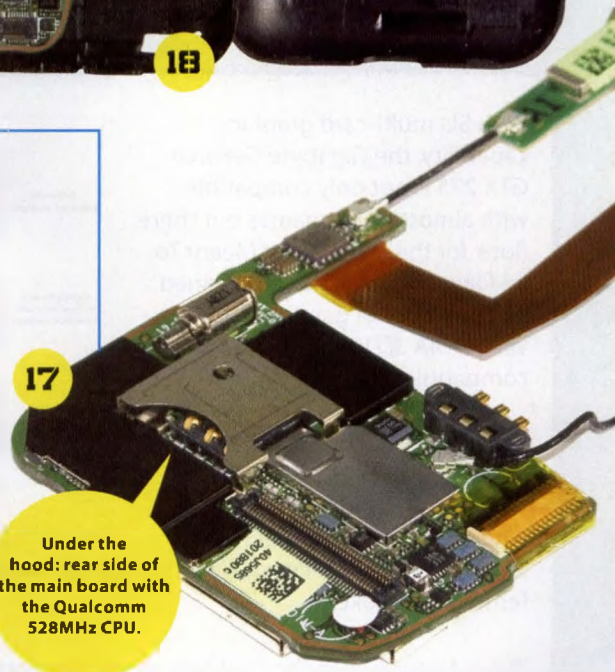
Google's Android

Android is a software platform for mobile devices, powered by the Linux kernel, initially developed by Google and later the Open Handset Alliance. It allows developers to write managed code in the Java language, controlling the device via Google-developed Java libraries. Android does not differentiate between the phone's core applications and third-party applications, so apps can be built to have equal access to a phone's capabilities, providing users with one of the most adaptable and easily modifiable systems around.





1. Front casing for LCD screen.
2. Trackball mount and tactile navigation controls.
3. Trackball/mouse.
4. 3.2in TFT-LCD flat touch-sensitive screen with 320 x 480 (HVGA) res.
5. Phone speaker and connections.
6. Sensor board for trackball and menu buttons featuring a Micro SD 2.0-compatible expansion slot.
7. Mount for LCD screen and speaker with connections.
8. Swivel backing for screen assembly with hinged attachment.
9. Flexible data connections from screen to main board in keyboard.
10. QWERTY keyboard surrounds.
11. Rubber keypad for keyboard.
12. Keyboard sensor board.
13. Mount for main board.
14. Bluetooth antenna.
15. 3.2-megapixel colour camera with auto-focus .
16. Volume control sensor board.
17. Main board featuring Qualcomm 528MHz CPU.
18. Rear panel.
19. User-replaceable, 3.7V, 1,150mAh (4.25Whr) rechargeable lithium-ion battery.
20. Battery cover.



GIGABYTE™

PhysX by NVIDIA

NVIDIA GeForce CUDA

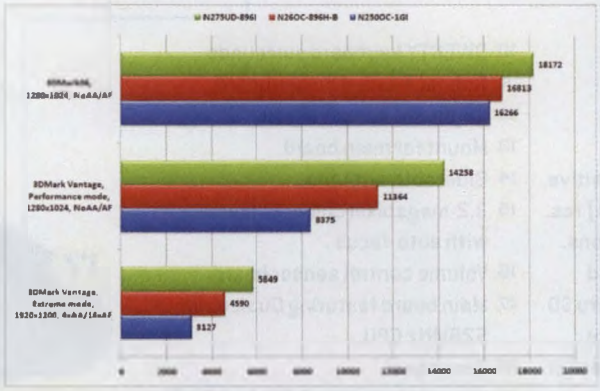
ULTRA DURABLE VGA

NVIDIA GeForce GTX 275 Graphics Accelerator

Ultra Durable VGA
2oz Copper PCB
Japanese Solid Capacitor
Tier 1
Ferrite Core Metal
Lower Rds

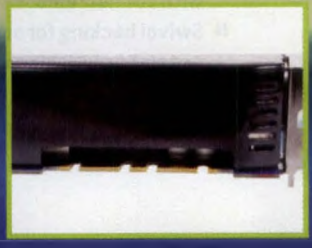
With Gigabyte's UDV (Ultra Durable VGA) technology, the Gigabyte overclocked GeForce GTX graphic card offers 30% more overclocking potential and a 10% reduction in GPU temperature compared to other cards. Coupled with NVIDIA's PhysX and CUDA technology, the card supports real-world physics found in games of today and tomorrow.

With SLI multi-card graphics capability, the Gigabyte GeForce GTX 275 is not only compatible with almost all the games out there (look for the The Way It's Meant To Be Played logo), it's also designed for the future of gaming – 3D, via NVIDIA 3D Vision glasses and compatible monitors.



The Gigabyte GTX 275 follows Gigabyte's Ultra Durable VGA standard featuring a graphic card with an extra 2oz cooper PCB Japanese solid capacitors, Tier 1 Samsung/Hynix memory, Lower RDS(on) MOSFET and ferrite core chokes.

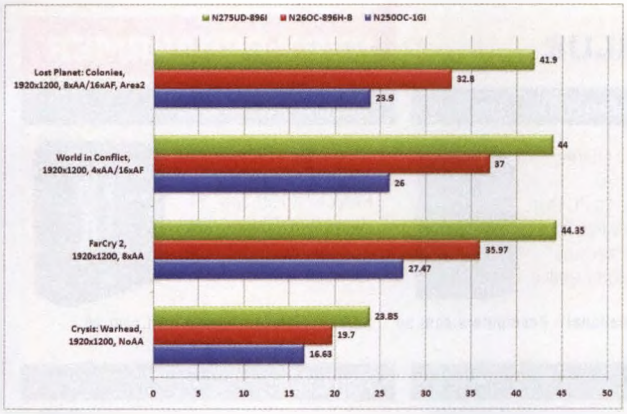
These features give the card 30% more overclocking potential and a 10% reduction in GPU temperature compared to the norm.



Gigabyte GTX 275 adapts gold plated HDMI to provide corrosion resistance and better electrical conductivity. Its PCB is actually slightly thicker than average with more solid construction and tougher components. The card also comes bundled with several adaptors for D-SUB VGA and HDMI connectivity.

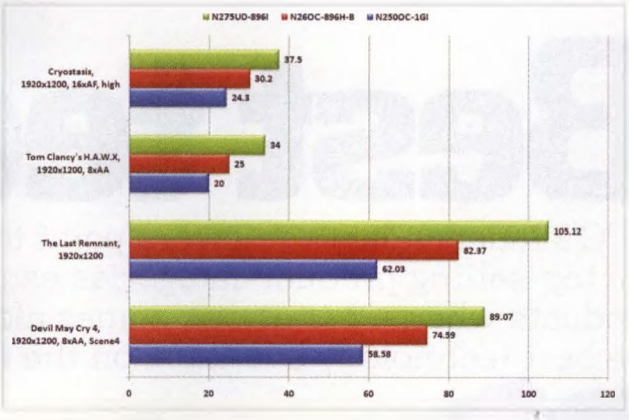
Requiring two 6-pin power connectors, the Gigabyte GTX 275 offers two SLI tabs for up to 3-way SLI setups. The card normally comes with a core clock speed of 633MHz but Gigabyte overclocked to 660MHz and a slightly faster effective memory clock speed of 2400MHz. Its unified shader clock speed of 1404MHz and a 448-bit memory interface, with 896MB worth of GDDR3 memory enables more graphic options while ensuring no performance bottlenecks where memory is concerned. Its 240 stream processors further enhance performance allowing for more realistic depictions in high definition 3D.

Most importantly, it whacks the competition where it counts. The Gigabyte GeForce GTX 275 excels in 7 leading cutting-edge games, and even takes the crown when it comes to industry-standard gaming benchmarks like Futuremark's 3DMark Series. All these tests are run in HD widescreen mode, showing the sheer power of the Gigabyte GeForce GTX 275.



With a 3DMark Vantage score of 14258 in Performance mode and 5849 in Extreme mode the Gigabyte GTX 275 easily hits the performance sweet spot for the newer graphic cards in the market. These scores indicate that in a DX10 environment such as Windows Vista, the card can deliver well above the norm and even outperform some older but more powerful graphic cards.

A score of 18172 in 3DMark06 proves the card isn't a slouch for older non-DX10 environments either. Applications that don't use DX10 will see a sharp performance boost and allow for all extra settings to be literally maxed out. Running perfectly from 1280 x 1024 resolution with no anti-aliasing to a widescreen 1920 x 1200 resolution with 4x anti-aliasing the card is ideal for both the average user as well as the high-end performance user for both games and 3D applications.



In game performance the Gigabyte GTX 275 delivers an exceptional framerate of 44.35 frames per second on FarCry 2 at widescreen 1920 x 1200 resolutions with 8x anti-aliasing. Bumping it even higher in Cryostasis at 1920 x 1200 resolution with 16x anti-aliasing the card delivered a framerate of 37.5 frames per second.

With a score of 23.85 frames per second in Crysis: Warhead at 1920 x 1200 resolutions and no anti-aliasing the card proves it is top contender within its market segment and beyond by scoring 104.12 in The Last Remnant on a widescreen 1920 x 1200 resolution.

For fast-paced arcade action the card scored equally well with a framerate of 89.07 in Devil May Cry 4 running on 1920 x 1200 widescreen resolution with 8x anti-aliasing. The Gigabyte GTX 275 also handles real-time strategy (RTS) games with plenty of onscreen processing excellently, scoring a framerate of 41.9 frames per second in Lost Planet: Colonies and World in Conflict at 44 frames per second, both running on 1920 x 1200 resolution and with anti-aliasing.

Built using Gigabyte's Ultra Durable VGA construction the Gigabyte GTX 275 is more capable of withstanding the rigours of overclocking in comparison to other graphic cards that do not use this construction standard. Where similar GTX 275 graphic cards would have stopped or hanged completely the new Ultra Durable VGA allows the Gigabyte GTX 275 to be pushed even further and still remain stable both by reducing operating temperatures as well as by making the overall structure and components tougher.

All in all, Gigabyte's overclocked GTX 275 does extremely well, hitting all the right sweet spots while allowing for excellent stability thanks to Gigabyte's solid Ultra Durable VGA construction.

Best tech

APC's independent reviewers point to the best technologies in the top-selling product categories each month. We only change products when a better one comes along. What you see here is the best technology available on the market right now.

LOOK OUT FOR THESE

NEW

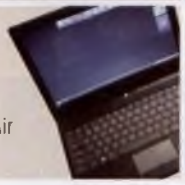
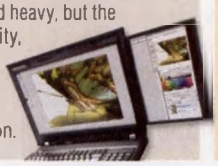
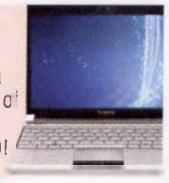
Products marked with this stamp are the latest additions to Best Tech.

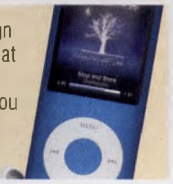
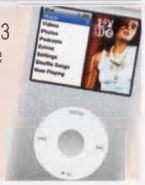
Movers & shakers

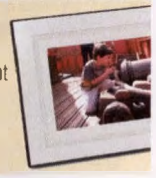
What's hot on the gear scene, for every budget.

Since phone feature sets are starting to split between home and work usage, we've divided our Best Tech phone categories into two: Business and Consumer. Consumer phones cover videos, photos, music and internet browsing, while in business, email is still the number one requirement. At the moment, the iPhone and BlackBerry are still kings.

	NOTEWORTHY	BEST VALUE	BEST PERFORMER
GENERAL PC	**Acer Aspire M7720** NEW A quality allrounder with Core i7 920, 3GB triple channel RAM, 5,400RPM 1TB hard disk and an AMD Radeon HD 4850. Handle most things, looks good and runs quiet. **$2099 > Acer > www.acer.com.au**	**TI Deluxe Phenom 810** Great-value system offering both 2D power and 3D performance. This is a PC that is genuinely better value than any Core i7-based machine we've yet seen. Recommended. **$1,950 > Trinity International > ticomputers.com.au**	**Altech NRG Tornado** Overclocked Core i7, 3GB of Corsair Dominator RAM, GTX 295, two Hitachi 500GB hard disks. You don't get much better value/power than this. **$2,999 > Altech > www.altech.com.au**
PANEL PC	**Eee Top PC ET1602** Sold as a low-powered PC for novices but doubles as a great web/network terminal: 15.6in glossy screen, 1.6GHz Atom processor. **$1,299 > ASUS > www.asus.com.au**	**Shuttle X50** At half the price of its competitors, the X50 is the first all-in-one to land in the budget price bracket. **$1,099 > Shuttle > www.shuttle.com**	**Apple iMac** Little in the PC world matches the 24in iMac's stunning presence and dash of style. Powerful too, with 3.06GHz Intel Core 2 Duo, 4GB of RAM and a 1TB drive. **$2,499 > Apple > www.apple.com.au**
MEDIA CENTRE PC	**Xbox 360** Not strictly a PC, but perhaps the most popular MC of all: connect it to a PC and record live TV, stream video and audio, and more. Elite version has everything. **$649 > Microsoft > www.microsoft.com.au**	**Enspire AVR550** Powered by an Athlon X2 5200+ with 640GB HDD and Radeon 3200 GPU, and comes with Maui platform audio to deliver crystal clear sound. Blu-ray player too. **$1,999 > Enspire > www.enspiredigital.com**	**HP Touchsmart IQ800** HP has really nailed the concept with the IQs machines. The IQ800 is the closest thing to a merger of the PC and TV. Full HD screen, TV tuner and Blu-ray player. **$3,799 > HP > www.hp.com.au**

	NOTEWORTHY	BEST VALUE	BEST PERFORMER
EXTERNAL HARD DRIVE	**WD My Book World Edition** WD is trying to make NAS more user-friendly with this new home 1TB NAS which provides Gigabit Ethernet, Wi-Fi connections and DLNA and UPnP streaming. **$350 > Western Digital > www.wdc.com**	**WD My Passport Elite** A 500GB portable drive that's fast, looks great and fits in your pocket – and best of all can be picked up for around $200 on the street. **$200 > Western Digital > www.wdc.com**	**Seagate FreeAgent Xtreme** Doesn't have RAID mirroring but still gives you 1TB of storage and Firewire, eSATA and USB 2.0. Plug it in and it's ready to go. Great price. **$199 > Seagate > www.seagate.com**
USB KEYS	**Kingston Data Traveler Blackbox** Kingston again! They set the standard in USB key drives. This one comes with software that encrypts its contents to FIPS 140-2 Level 2 standard. **$140 > Kingston > www.kingston.com**	**Kingston Data Traveler 150 32GB** A 32GB USB key that's virtually a portable hard drive — stick hours and hours of video in your pocket. Incredible. Supports Windows & Mac. **$140 > Kingston > www.kingston.com**	**Kingston DataTraveler Vault** The world's most extravangantly expensive USB key – that's because it comes with hardware-based, on-the-fly, 256-bit AES encryption. **$1,239 > Kingston > kingstonmemory.net.au**
NETBOOK	**ASUS Eee PC S101** One of the first netbooks to transcend utilitarian, the metallic mocha chassis makes it look a million dollars and highlights the evolution of the Eee PC species. **$999 > ASUS > www.asus.com.au**	**Kogan Agora Netbook** Base version is almost component for component an MSI Wind; we recommend the Pro: larger (160GB) hard disk, more RAM and 6-cell battery (and is still cheaper). **$549 > Kogan > kogan.com.au**	**MSI Wind U120H** Same specs as the U100 but delivers on the ideal of the go-anywhere, permanently-connected device by including in-built 3G HSDPA. **$999 > MSI > www.global.msi.com.tw**
NOTEBOOK ALLROUNDER	**Dell Adamo** Milled from a single razor-thin piece of aluminium, this is Dell's 16.5mm thick take on the MacBook Air fashion accessory.  **$3,699 > Dell > Dell.com.au**	**HP dv2-1001AU** A fantastic offering, melding the price and convenience of a netbook with the powerful hardware and comfort of a fully-fledged notebook. **$1,199 > HP > www.hp.com.au**	**Samsung X460** NEW Thin and light, but with a 2.66GHz Intel Core 2 Duo P9600 processor, 4GB of DDR3 1066MHz RAM, and NVIDIA GeForce 9200M GS graphics. **$2,999 > Samsung > www.samsung.com.au**
DESKTOP REPLACEMENT	**ThinkPad W700ds** Expensive, large and heavy, but the dual-screen capability, integrated graphic tablet and desktop-like specs mean it's a portable workstation.  **$7,500 > Lenovo > lenovo.com.au**	**MSI EX625** NEW Awesome value with a 16in 1,366 x 768 resolution LCD display and an ATI HD 4670 GPU which packs a 512GB of DDR3 VRAM. Uses Centrino 2 chips and 2GB of RAM. **$1,399 > MSI > www.msicomputer.com.au**	**HP X18** Top-of-the-line portable media centre. With an 18.4in, 1,920 x 1,080 screen, a Blu-ray player, a DVB-T/Analogue TV-tuner and great speakers. **$3,899 > HP > www.hp.com.au**
BUSINESS NOTEBOOK	**Sony VAIO VGN-P** A truly tiny $2,299 notebook for business people and fashionistas who would not be seen dead with a cheap netbook. **$2,299 > Sony > Sony.com.au**	**Lenovo's ThinkPad X301** Lenovo's X ThinkPads look the part. The X301 is the latest in the line, with a 13.3in backlit widescreen display, 2GB RAM and 120GB HDD. **$2,924 > Lenovo > Lenovo.com.au**	**Toshiba Portege R600** Full-power business notebook in a netbook shell. Sub-1kg, yet with a 1.4GHz Core 2 Duo, 3GB of RAM, DVD burner and 200GB HDD/128GB SSD!  **$3,300 > Toshiba > Toshiba.com.au**

	NOTEWORTHY	BEST VALUE	BEST PERFORMER
PHONE BUSINESS	**Nokia E63** NEW Great all rounder with amazing battery life (11 hours talk, 18 days standby) superb keyboard and necessary Nokia apps. Has Wi-Fi and 3G. $399 > Nokia > www.nokia.com.au	**Nokia E75** NEW Works like a BlackBerry with the new Nokia Messaging push email service. You can configure up to 10 Gmail, Yahoo Mail, Live Mail and other free and hosted email accounts. $979 > Nokia > www.nokia.com.au	**BlackBerry Bold** The Bold is the most addictive BlackBerry yet, with built-in Wi-Fi and GPS, a stunning screen and DivX/XviD playback. It's still the best for email too. Plan > RIM > www.blackberry.com
PHONE CONSUMER	**Nokia N85** NEW A multimedia powerhouse without the overhead and complicated input mechanisms of a standard smartphone – but with most of the goodies and smashing OLED screen. $919 > Nokia > www.nokia.com.au	**Sony Ericsson C510** Unprecedented set of high-end features for the money: HSDPA, Bluetooth, an accelerometer, GPS and custom social networking apps. 3.2MP camera with auto-focus. $389 > Sony Ericsson > sonyericsson.com.au	**iPhone 3G S** NEW Glorious user interface, 3G speed, and now faster CPU, slicker graphics, can shoot video and take better photos. Plan > Apple > www.apple.com.au
MUSIC PLAYER	**iPod Shuffle** The 3rd-generation shuffle moves the playback controls into the earphones and has voice-over that tells you what song is playing. 4GB of storage carries up to 1,000 songs. $129 > Apple > apple.com.au	**Apple iPod nano** A new long narrow design with an accelerometer that kicks the nano into landscape mode when you hold it sideways. Now in 8GB and 16GB models.  $199 > Apple > www.apple.com.au	**Apple iPod Classic 80GB** The number-one selling MP3 player of all time — with the most intuitive menu system and super iTunes software that combines downloads and music management.  $319 > Apple > www.apple.com.au
MP3 DOCKS	**Altec Lansing octiv AIR M812** Unlike most other iPod docks, the dock and speaker connect to each other wirelessly up to 30m away. Produces a warm, well-balanced sound. $799 > Altech Lansing > alteclansing.com	**TDK NX-04CD remote & Mic** Audio performance blows similarly priced docks out of the water, and looks great. But it can also play music off USB drives and SD cards. $300 > TDK > tdk-media.com	**B & W Zeppelin** Simply the best-quality iPod dock speaker system around, even if not the most expensive. So good you need 320Kbit/s tracks to get the most out of it. $1,300 > Bower-Wilkins > bower-wilkins.com
IN-CAR DOCKS	**Alpine eX-10** A great option for plugging an iPod into your original car stereo. Plug the eX-10 into the auxiliary port or sync it with the FM transmitter. $299 > Alpine > alpine.com.au	**Clarion CZ209A** An affordable in-car single DIN head unit with all the basics, such as direct iPod control (via USB port), plus convenient front panel auxiliary input. $279 > Clarion > clarion.com	**Alpine VA-W502E** The IVA-W502E is Alpine's most advanced mobile media station and plays back all media formats. Plus, it's got a 7in high-resolution WVGA display. $1,899 > Alpine > alpine.com.au
GPS	**Uniden TRAX 430 GPS** Comms company Uniden has released a ripper of a GPS device, impressing with its ease-of-use, exceptional screen and ability to create 3D maps. $379 > Uniden > www.uniden.com.au	**TomTom ONE XL** The most affordable TomTom that delivers the features that matter, with the same display and navigation engine of the more expensive TomToms. $399 > TomTom > www.tomtom.com	**TomTom GO 930** The top-of-the-line TomTom delivers traffic messaging, intelligent live routing, FM transmitter, voice-recognition and text-to-speech. $849 > TomTom > www.tomtom.com.au

	NOTEWORTHY	BEST VALUE	BEST PERFORMER
COMPACT CAMERAS	**Ricoh CX1** NEW One of the first compacts with a high-speed CMOS sensor to capture light at faster speeds and wider range of conditions. $599 > Ricoh > www.ricoh.com.au	**Canon Powershot A480** Most affordable Canon compact ever, and unless you're into action photography does a good job of the basic family shots. $199 > Canon > www.canon.com.au	**Canon IXUS 80 IS** Probably the best digital compact on the market, with every function you could ever need but still at a great price. $379 > Canon > www.canon.com.au
DSLR CAMERAS	**Canon EOS 50D** Although better than the 450D, the 50D's price stops it being in the Best Value category. Still not as good as the Nikon D90 but still a great camera by any means. $2,599 > Canon > www.canon.com.au	**Canon EOS 450D** The best low-price DSLR you can get. Suited to the amateur photographer, the 450D offers heaps of features in a tiny DSLR frame. Bargain! $949 > Canon > www.canon.com.au	**Nikon D90** This is just sexy! The first DSLR with HD video, the D90 is the best non-professional camera you could get without sending yourself broke. $1,699 > Nikon > www.nikon.com.au
HD CAMCORDER	**Sanyo Xacti VPC-CG10** NEW Looks like a Taser, but shoots hi-def video using MPEG-4 in 1,080 x 720 resolution. Much better cheapie than a Kogan Full HD camera. $549 > Sanyo > www.sanyo.com.au	**Sony HDR-CX100E** With the excellent mechanics and HD optics of Sony's new HDR range but with 8GB flash-storage. The most affordable Sony HD. $1,199 > Sony > www.sony.com.au	**Sony HDR-XR520V** Want the best consumer camcorder out there? With 240GB HDD storage capacity, 12MP still images and so much more. $2,699 > Sony > www.sony.com.au
PHOTO FRAMES	**Kodak EASYSHARE W1020** In addition to a great 10in display, comes with Wi-Fi access that connects you to Kodak online content and can receive (and send) pictures from Flickr or Kodak's gallery. $285 > Kodak > www.kodak.com	**Kodak P720 Touch Digital** Kodak's entry-level Photo Frame, with a good quality 7in screen and the excellent Quick Touch Border which makes it really easy to navigate menus.  $140 > Kodak > www.kodak.com	**Samsung SPF-105V** Almost like a mini-TV with an impressive monitor and able to play MP3s and video files, plus lots of slideshow effects. $399 > Samsung > www.samsung.com/au
HDTV	**Kogan 1080p-42** The most HDTV you can get for the money: a 42 incher for $1,200. Bit lean on picture refinement technologies found in others, but who's complaining? $1,299 > Kogan > www.kogan.com.au	**Samsung A650A1** Samsung's new HDTVs have taken the South Korean maker to a new level; this sub-$2,000 TV has all the features of last year's most expensive units. $1,999 > Samsung > www.samsung.com.au	**Samsung LA46A950** The first HDTV range to offer live internet content through RSS feeds, plus sophisticated LED backlighting produces blacks to rival plasmas. $5,499 > Samsung > www.samsung.com.au
TV TUNER	**Silicon Dust HD Home Run** A networked TV tuner server that allows any PC on your network to access digital television. Cheaper and easier than multiple antenna points. $299 > Lako Pacific > hdhomerun.com.au	**Kworld DVB-T 395UR** A basic HD tuner card that allows you to watch HD digital TV on your PC or notebook. It's not flash, but it works well, is portable and convenient. $79 > Kworld > www.kworld.com.tw	**Hauppage Nova TD** NEW The Nova TD USB stick has two HD tuners, is designed specifically for Freeview and comes with excellent drivers and software. $179 > Hauppage > www.newmagic.com.au

	NOTEWORTHY	BEST VALUE	BEST PERFORMER
DISC PLAYERS	**Sony PlayStation 3 80GB** Yes, it's a games console, but it also doubles as a Blu-ray player that's as good as any standalone devices on the market. It's the same price as some of the better ones, so do your sums. **$699 > Sony > www.sony.com.au**	**Kogan Blu-ray Player** Basic, affordable. Plays back good-quality HD and upscales DVDs. Downside is lack of support for BD-Live (Profile 2.0) which means no internet content or firmware upgrades. But at $249 who's complaining? **$249 > Kogan > www.kogan.com.au**	**Sony BDPS350** Superb HD playback quality and does great upscaling of DVDs to high definition. Unlike the $1,799 Pioneer, available for around $400 on the street. **$400 - Sony > Sony.com.au**
DVR	**FOXTEL iQ2** If you watch pay TV, the FOXTEL iQ2 is a must. Records both standard and high-definition free-to-air TV to a spacious 320GB hard drive. **$10 month > FOXTEL > www.foxtel.com.au**	**TiVo HD** The TiVo's smart recording features (such as WishList) are the main reason you'd choose this DVR over the others, despite the fact that it won't record pay TV. **$699 > TiVo > www.tivo.com.au**	**Panasonic DMR-BW500** The ultimate high-definition DVR — can record two HD programs simultaneously to its 500GB hard disk or directly to Blu-ray media. A bucketload of connectors too. **$2,199 > Panasonic > Panasonic.com.au**
ROUTER	**D-Link DGL-4500** A dual-band gigabit router built for gamers. Helps prioritise game traffic, and now with Green technology, which detects link status and cable length and adjusts power usage accordingly **$350 - D-Link > www.dlink.com.au**	**TP-Link TL WR941ND Wireless N** A Draft 2.0 N router with MIMO, using three adjustable antennas for speeds of up to 200Mbit/s. Performance is decent and the documentation is good. **$129 > TP-Link > www.anyware.com.au**	**Linksys Dual-N WRT610N** It does dual-band Wireless N (5GHz and 2.4GHz), is one of the best performers in testing and looks great. Comes with Linksys' superb LELA network setup wizard. **$290 > Linksys > linksys.com.au**
PRINTER HOME	**Canon Selphy ES2** A dye sublimation printer, the Selphy can print directly from every variation of memory card and even from mobile phones, and you don't need a computer. **$299 > Canon > www.canon.com.au**	**HP Color LaserJet CP1215** It's not the fastest colour laser out there, but it has two things going for it: the HP LaserJet heritage and its price, which is well-affordable home use. **$299 > HP > hp.com.au**	**Samsung CLP-350N laser** The first in the Samsung lineup of excellent affordable colour lasers, with all the specs to meet basic home or business requirements. **$399 > Samsung > Samsung.com.au**
PRINTER — SMB	**OKI B430dn** If you're looking for a solid workhorse mono laser, OKI's B430dn is perfect for the task, and should keep many small businesses happy. **$875 > Oki > www.oki.com.au**	**Dell 2130cn** Dell is becoming synonymous with value in business printers. Its 2130cn is a good entry-level, biz-grade colour laser, with a duty cycle of 40,000 pages/mth. **$499 > Dell > dell.com.au**	**HP Color LaserJet CP3525x** On the expensive side, but the CP3525x provides Gigabit Ethernet in addition to USB 2.0. Great if you feel the need for speed and can put up with some noise. **$2,403 > HP > www.hp.com.au**
MFC	**Canon MX860** Canon's MX860 is a full-function inkjet MFC aimed at the lower end of the SMB market, with USB 2.0, 802.11b/g and 10/100 Ethernet. **$299 > Canon > www.canon.com.au**	**Epson Stylus Photo TX800FW** This stylish MFC will look great in a home office — but it also produces good photos and good copying results. Can also be shared across a network. **$399 > Epson > www.epson.com.au**	**Brother MFC-6490CW** If your business needs an A3 printer, the Brother MFC-6490CW is a good choice. Includes both Wi-Fi and Ethernet interfaces. **$549 > Brother > www.brother.com.au**

63 ownerbuilder

FROM THE READERS OF APC

APC MAGAZINE OWNER BUILDER READER PC

masterbuilder@acpmagazines.com.au

Submit your PC configuration to *APC*'s Master Builder and, if chosen to appear in the mag, you will win a Logitech Illuminated Keyboard worth $179.95. This amazing keyboard comes with backlit keys that can be adjusted to precise illumination, so you can use the keyboard in the dark. The stylish keyboard is ultra-thin, with a 9.3mm profile and transparent frame, a perfect companion to that cool PC you've built. Send your PC configuration to masterbuilder@acpmagazines.com.au in exactly the same format as published on this page.

Home-theatre PC that plays games

Leith believes his home theatre/gaming PC leaves games consoles behind.

CORE SYSTEM

SYSTEM COST $1,294

Leith Magon, 23, is a university student from Hamilton, NZ. He has built an HTPC/gaming machine built to a strict budget, and designed it to sit in the loungeroom. "A lot of people think an HTPC should be solely for free-to-air TV," he says, "but with more and more games becoming ports to the PC, I find it works flawlessly and leaves consoles in the dust."

CPU

Intel Pentium Dual Core E5200 — $99

This is the cheapest on the market from Intel's range. It's a budget CPU with lots of overclocking potential, as it has a high multiplier currently running at 3.7GHz. I also prefer Intel CPUs because of how cool they run.

MOTHERBOARD

DFI Lanparty JR P45-T2RS mATX — $190

I really liked the idea of being able to CrossFire in a mATX build, so I got this motherboard because it has two 8x PCI-E lanes for CrossFire. It also had to be mATX to fit my case. It performs extremely well on the P45 chipset.

RAM

4GB Kingston HyperX 1066MHz — $105

I moved straight from Windows XP to Windows 7 RC. Having heard all the talk about Win 7 being able to use more resources I decided to get 4GBs worth of RAM. Given that Kingston also offers their RAM at such reasonable prices I decided to get 1,066MHz instead of 800MHz.

GRAPHICS

ATI Sapphire Radeon 4770 — $180

I needed a system that could decode H.264 content. It also needed to play my games with a decent FPS rate. But just as importantly, it needed to have low power consumption as it was going into a small case that doesn't have a lot of ventilation.

HDD

WD Caviar Blue 640GB — $120

I heard good things through friends that the WD drives were quick and quiet. I also needed quite a lot of space for recording TV, pausing live TV, storing games, etc.

PSU

Thermaltake 430W — $50

Thanks to manufacturers making power-saving cards, 430W was more than enough.

CASE

Silverstone GD02MT — $550

It's black, air-brushed aluminum on the front, plus a 4.3in touchscreen for multimedia purposes. This is truly a breathtaking case. Picking the case was probably the hardest decision for me. It houses two full-sized video cards and a custom heatsink fan for the CPU. It does all this, but it's quite a tight fit in there.

AUDIO

On-board Realtek Audio chipset — $0

Coaxial output was a must for me as that's how I like to plug my computer into the separate amplifier. I also needed an audio chipset that would allow me to bit-stream (pass through audio untouched by Windows).

EXTRAS

MONITOR

32in Daewoo TV DLV-32C7LMB — $1,200

I needed something with reasonable size so I could sit back on the couch and watch TV/movies. With Windows 7's new features I can also adjust the way I like it. Surprisingly, it's quite easy to use this TV as a day-to-day monitor. I'm using it right now.

KEYBOARD AND MOUSE

Generic — $20

OPERATING SYSTEM

Windows 7 RC — $0

I'm using Windows 7 RC and it's brilliant. Free at this point too!

MEDIA CENTRE SOFTWARE

Microsoft Media Center — $0

Comes with Windows 7 RC.

APC reader and Owner Builder, Leith Magon.

masterbuilder

HOW TO BUILD THE ULTIMATE PC

APC MAGAZINE MASTER BUILDER PRO BUILD

One of the joys of computing is building your own PC. Each month a Master Builder will configure a PC for a specific task and pricepoint, recommending the best components for the job. But we also want to know what you, our readers, are building, so Owner Builder is your showcase.

Building a small business NAS Server

EDsys Computers' Builders spec out an ideal server for a small business.

Many small businesses run PCs as servers instead of dedicated machines, as they should. But building a server is no different to building a PC, so we've asked the award-winning PC and server makers EDsys Computers to spec an ideal, affordable server for a small business. While EDsys achieved national prominence as the winners of Australia's greenest PC competition, they also make great servers, supplying under OEM to many different market sectors and retailers. EDsys Computers products are available Australia-wide, call 1300 796 886 to find their resellers.

CORE SYSTEM

SYSTEM COST $2,946

MOTHERBOARD

Intel S3210SHLX — $559

This is a server-class motherboard from Intel for small businesses, designed for when the demands imposed on the server don't warrant multi CPU architecture but there is a need to take advantage of a server OS. The S3210SHLX is the highest spec of the three 32xx series boards. The dual GBE (1 to LAN) (1 to NAS) is ideal. Onboard RAID gives added data protection. A dedicated RAID controller is optional and recommended subject to application. The embedded Intel RAID technology is a good place to start , we set up RAID1 with this server as the default configuration.

PROCESSOR

Intel Xeon BX80580X3330 — $509

The uni-processor Xeon is a follow-on from earlier PIV flavours offered on server-class mainboards. Quad-core and with 1,333MHz FSB, it's well positioned to take advantage of the S3210SHLX mainboard. It's a good mid-level processor meeting performance and cost needs for this server.

CHASSIS

Chenbro SR209 — $399

We use the Chenbro chassis in many of our server models, providing flexibility for customised server or high-end Geo and CAD Stations.

HARD DRIVE

Seagate ST3500320NS Barracuda ES.2 SATA 500GB Hard Drive — $215

Desktop drives just don't cut it in a server environment. We only use enterprise-class drives in our range of servers. This particular level server is equipped with SATA hard drives delivering 24/7 reliability and 1.2 million hours MTBF. 7,200RPM and 32MB cache provides good performance at an affordable price, yet selection of these drives is determined by the application of the server and not necessarily the price! We've preferred Seagate hard drives in this server as they provide a 5-year warranty, perfect coverage for SMBs.

RAM

Kingston 2GB 667MHz KVR667D2E5/2Gi — $59

Over the years we have tried it all! We use Kingston RAM for three reasons: reliability, compatibility and consistency. Since our systems are used Australia-wide and in regional areas it's just not worth using different brands from week to week to save a few dollars, then having to travel sometimes hundreds of kilometres to replace a flaky RAM module.

OPTICAL DRIVE

Sony GH20NS10 — $29

Edsys' Master Builders: Grant West, Edsys Production Manager (left) and Steve Wells Product Manager, Server.

PRO OPINION

EDSYS COMPUTER'S COMMENT ON OWNER BUILDER LEITH MAGON'S PC

SEE PAGE 63

1. Where's a TV tuner? For around $70 you can add the Compro VideoMate T100, a single HDTV Tuner that outperforms a number of the more expensive options! You would probably want to look at a twin tuner so you could watch and record at the same time.
2. If this is going to act as your media server and you have other portable devices wireless is a must, from as little as $39 you can add a D-Link wireless G PCI adapter.
3. For the cost of disk space we would have fitted a WD Caviar Green 1TB 7200/32MB SATA2 drive for around $111.
4. We would have a less fancy case and use the $200-$300 saving on a wireless media centre keyboard and perhaps an upgraded CPU. Look at the Silverstone GD02 with a RRP of $239.
5. Windows 7 is not costed into the price. We recommend Vista Home Premium now with the coupon for a FREE Win 7 upgrade.

POWER SUPPLY

Thermaltake W0163 — $229

Delivers superior reliability and extremely quiet operation. Stable 650W power ensures enough juice to run pretty much any internal hardware population of this server. Modular design allows us to only use the cables needed, further enhancing airflow with the reduced cabling. Industrial grade components plus a lifetime manufacturer warranty make this PSU a solid option.

KEYBOARD & MOUSE

Microsoft AJB-00029 — $33

The keyboard and mouse on any server are probably rarely used, however, they must work when the need arises. The Microsoft kit we have chosen is functional and reliable without adding too much to the overall cost of the server.

FLOPPY DRIVE

SONFLOPB — $15

Believe it or not a lot of people have these tucked away in drawers as something they may need. We have found that for a couple of dollars these legacy items have saved the day: when someone needed an old company profile word document, or to load a driver for an old printer in the warehouse that's still going strong.

OS

Small Business Server 2008 — $899

Quite simply there is no other product that offers such a complete solution for the price. Microsoft's SBS offers file and printer sharing, a secure internet connection for all network PCs, access to data away from the office and a messaging system that also enables you to access email from mobile devices.

WARRANTY

Get a good warranty. If we can just insert a plug for ourselves, Edsys Computers offer warranty solutions from 2-year return to dealer to 4-year on-site with 4-hour response.

EXTRAS

BACKUP & DISASTER RECOVERY

ShadowProtect SCSPSBSSERVER3 — $753.80

We always recommend a backup solution with every server. StorageCraft's ShadowProtect, allows you to have realtime backup every 15 minutes and can restore single files in seconds or indeed the complete server in just minutes. It's able to recover the server to any machine quickly, using the hardware independent recovery feature.

NAS

D-Link DNS-323 + 2 x Seagate ST3500320NS — $929.95

Provides a solid respository for StorageCraft backups. It offers RAID 1 capability, which causes the drives to mirror each other, providing maximum protection. If one drive fails while configured as RAID 1, the unaffected drive continues to function as a single drive until the failed drive is replaced.

System cost with extras (and 2-year RTD warranty): $4,629.75

Best build

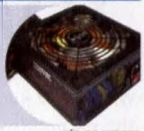
APC experts recommend the best components to build the best budget, mid-range and ultimate PCs that money can buy.

LOOK OUT FOR THESE

NEW

Products marked with this stamp are the latest additions or updates in Best Build.

	BUDGET $1,128	MID-RANGE $2,883	THE ULTIMATE $9,119
CPU	**Intel Pentium E5200 2.5 GHz** Ultra cheap entry-level CPU which can be overclocked to perform like a more expensive CPU. Intel > www.intel.com $100	**Intel Core i7 920** The baby of the new Core i7 family blows away its Intel predecessors in anything requiring multi-processing. Needs X58 chipset motherboard. Intel > www.intel.com $475	**Intel Core i7 965 Extreme Edition** Simply put, this is the fastest desktop quad core CPU available today. You will not find better. Intel > www.intel.com $1,675
COOLER	**Cooler Master Hyper Cooler Master TX2** Don't let the price tag scare you off: this offers many of the features we see in higher-end coolers: a copper base, alum. fins and 3 heat-pipes. Cooler Master > www.coolermaster.com $49	**Thermolab BARAM** The Thermolab Baram heat sink uses a combination of pure copper, aluminium and positioning to provide maxiumum heat extraction. Thermolab > www.thermolab.com $70	**Cooler Master V10** Two fans, three sets of cooling fins and ten heat pipes that will cool anything. The ultimate thermal solution. Cooler Master > www.coolermaster.com $208
MOBO	**Gigabyte GA-EP45-DS3L** Great budget board. Has good performance, can handle overclocking and comes with a great price. Gigabyte > www.gigabyte.com.au $170	**Gigabyte GA-EX58-UD3R MB** Stable and reliable under default or overclock conditions. Also supports both NVIDIA SLI and ATI CrossFireX technology. Gigabyte > gigabyte.com.au $369	**ASUS P6T Deluxe/OC Palm** Overclocking features for the Core i7 extreme. Includes an external PDA-like device for monitoring and overclocking. ASUS > www.asus.com.au $599
RAM	**PC2 6400 DDR2 800MHz CL4** NEW An aggressively priced low latency DDR2 kit that packs a whopping 4GB across two sticks: more than enough for most gamers. Team Group > www.teamgroup.com.tw $70	**Corsair TR3X3G1333C9 3GB (1333MHz)** Corsair DDR3 memory is reliable and stable, using XMS technology heat spreaders to keep the memory chips cool. Corsair > www.corsair.com $165	**Corsair Dominator TR3X6G2000C8GTF** This is the biggest overclocking RAM on the market. Push the clocks up to 2,000MHz and at 8-8-8-24 timings. Corsair > www.corsair.com $679
GRAPHICS	**Sapphire HD 4770** The first affordable card to use GDDR5 memory, and with a 40nm core. Will run most games on a 22in screen in nearly full resolution. Sapphire > www.sapphiretech.com $169	**ATI Radeon HD4870 GDR5** NEW Offers good value and performance. Runs CrossFire, so you can always add a second card for incredible graphics performance. AMD > www.amd.com $270	**Manli GeForce GTX295 1792MB** Manli has taken the fastest card on the market and jammed more memory in it. Some minor overclocking will make it even faster. Manli > www.manli.com $795

	BUDGET	MID-RANGE	THE ULTIMATE
HDD	**Seagate Barracuda 500 GB 32MB** It's astonishing to realise that a good quality 500GB drive can be had for less than $100. The best budget option. Seagate > www.seagate.com $90	**Western Digital Caviar Black 1TB** A 1TB drive was considered a premium HDD a couple of months ago, now it's the minimum for a reasonable PC. Western Digital > www.westerndigital.com $200	**Western Digital Green Caviar 2TB** Need more storage? Try the world's first 2TB hard drive from WD. This 3.5in drive has four 500GB platters and a 32MB cache. Western Digital > www.westerndigital.com $469
HDD 2	**None needed** (At this price level, one drive will do.) N/A	**Western Digital VelociRaptor** Fastest mechanical drive, with 300GB. Should be the primary drive for OS and apps while a fat slower drive holds the data. Western Digital > www.westerndigital.com $280	**Intel X25-E 64GB SSD** Use this SSD for pure speed on your boot disk. You'll be amazed at the difference. If you can afford it, it's like a major RAM/CPU upgrade. Intel > www.intel.com $1,500
OPTICAL	**LG 22x Dual Layer DVD RW SATA** Doesn't burn to Blu-ray but cheap and does the job. If you're looking for the best budget optical unit, this is it. LG > www.lg.com.au $40	**LG Blu-ray/HD-DVD Combo Drive** Plays both Blu-ray and remaining HD-DVD discs, and also comes with PowerDVD 7. Can be upgraded to support 6-channel audio. LG > www.lg.com.au $170	**Sony BWU320OS Blu-ray burner** Writes to BD-R at 4x and BD-RE at 2x, plus does all the usual DVD reading, writing and arithmetic. Nice one. Sony > www.sony.com.au $490
PSU	**Antec Basiq BP500U** From Antec's budget range of power supply units but is a solid workhorse performer which does the job. Antec > www.antec.com $90	**Antec TP-550** The Antec True Power 550W PSU is highly efficient, stable and reliable. With three +12V rails it allows power to be distributed more evenly. Antec > www.antec.com $150	**Gigabyte ODIN Pro 1200W Modular** Modular cabling, 4-rail design, Japanese capacitors and runs silent. Plenty of juice for a top-end system.  Gigabyte > www.gigabyte.com $375
CASE	**Thermaltake Case Wing RS101** A good, cheap but effective mid-tower case with a 120mm fan, extra ventilation for CPU and tool-free assembly. Nice piano-black finish! Thermaltake > www.thermaltake.com.au $80	**Antec Nine Hundred Two** Antec has updated its classic Nine Hundred gamer's case, improving the cooling and adding better cable management and an inside paint job. Antec > www.antec.com.au $220	**Cooler Master ATCS 840** Nothing says style like understatement. Top-quality design and manufacture, plus heaps of room and cooling. Cooler Master > www.coolermaster.com $400
MONITOR	**BenQ E2200HD** A 21.5in Full HD Widescreen LCD monitor offering 5ms Response Time, 1,920 x 1,080 resolution, Dynamic Contrast Ratio of 10,000:1. BenQ > www.benq.com.au $250	**Dell 2209WAf** With a top-quality panel, clean design, built-in hub and adjustable stand, this monitor should last through a few upgrades. Dell > www.dell.com.au $419	**Dell 22in Crystal** Maybe not the fastest or the biggest monitor around, but take a look at it! Stylish as they come. Dell > www.dell.com.au $1,599
KEYBOARD	**Logitech Ps II Keyboard and Mouse** An affordable but effective combo. Combining packages of keyboard and mouse is the best way to stick to a budget. Logitech > www.logitech.com.au $20	**Microsoft Natural Keyboard 4000** Excellent ergonomic board with loads of hot keys. Great for hand comfort and heaps of value-added special functions. Microsoft > www.microsoft.com.au $50	**Logitech G19** Is it still a keyboard if it comes with its own mini monitor? Probably has more computing power than your first PC. Logitech > www.logitech.com.au $245
MOUSE	**Logitech Ps II Keyboard and Mouse** Combinations of keyboard and mouse are the best options when trying to keep your peripheral costs down. (See above.) Logitech > www.logitech.com.au N/A	**Microsoft Wireless Laser Mouse 600** Superb ergonomic and affordable laser mouse with Windows flip 3D key and four-way scrolling. Microsoft > www.microsoft.com.au $45	**Cyber Snipa Stinger Laser Mouse** We've come to love this mouse, despite (or because of) its good performance and reasonable price. Cyber Snipa > www.cybersnipa.com $85

WINDOWS 7: HARDWARE

Nick Race tests Windows 7 on a variety of PCs, from good to bad, and busts several myths.

Windows 7's impending release in October is big news. After Vista's failure to inspire consumers, Microsoft wants to redeem itself with an impressive OS. Our testing of the code-complete Windows 7 Release Candidate shows there's good news and bad news about the new OS's hardware requirements. The bad news is that they are actually very similar to Vista's. The good news is that since Vista's launch in January 2007, PC technology has caught up, and new budget PCs will run it with a reasonable level of performance.

The new tech in Vista that set it aside from its Windows XP predecessor were additions such as Aero, a 3D desktop interface, and Windows Desktop Search, which indexed files on the PC for a quick and easy search. The big downside with these features was that the requirements for running them were just too high for the technology of the day. Combined with the utter confusion about what level of PC performance was required to run Vista, there were a lot of disappointed people come Vista launch day.

Windows 7 can pretty much be summed up as Vista 2.0: most of the core technologies and features remain, while additions to make your computing life easier have been added. But contrary to the breathless praise and miraculous abilities attributed to it in the blogosphere, Windows 7 will not run on ancient hardware. XP is still a better bet for old machines.

Not everyone is going to buy a new PC just to run a new operating system. So we've gotten our hands on a number of older systems and benchmarked Windows 7 performance. We all know it'll run just fine on a new PC (and we've included a killer system just to show you how well), but how it runs on what most people will be sporting in their study is a much more interesting question.

HOW WE TESTED

We pulled together a number of PC systems of differing ages and specifications to give us a feel for how Windows 7 will run on a range of hardware. Once freshly installed with the Window 7 Release Candidate and updated via Windows Update we installed the following software.

MICROSOFT OFFICE PRO 2007: FULL INSTALL WITH UPDATES

A core application for computer users both at home and the office. If Office doesn't run well, then it's a no-go.

DMS CLARITY STUDIO

It assists by running a workload of Office documents, including PowerPoint, Word and Excel. It creates and edits large documents, then times how long it takes for the PC to work through its tasks.

PCMARK VANTAGE

We ran PCMark to get a good benchmark for comparing the discrete PC systems, as well as a number to confirm the efficacy of our other benchmarks.

GOOGLE EARTH

We used Google Earth as a common 3D application. We timed how long it took to load, and then used it for a subjective feel for the system's performance.

BOOT TIMES

We timed each system's boot from BIOS screen to Desktop (no login screen). This result is heavily dependent on the speed of the system's disk drives, plus extra booting time taken by component BIOS's (like RAID adaptors).

SUBJECTIVE TESTING

We also spent time using each system to get a feel for its performance. A system might boot fast, but constant disk activity and graphics sluggishness might not turn up in benchmarks alone. This was a good way to get a handle on whether we'd recommend Windows 7 as an upgrade option for older systems.

SYSTEM REQUIREMENTS

Microsoft's Windows 7 system requirements dissected.

The basic system requirements for Windows 7 seem quite low. The cynic inside tells us the lower you set the bar, the more customers will buy your OS. But our testing shows performance on low-end machines is going to be pretty dire, and from what we saw of Vista, unhappy customers tend to be vocal about it. In reality, we wouldn't run Windows 7 on a machine with Microsoft's minimum suggested specs for Windows 7, so if your PC hovers around there, stick with Windows XP or Linux.

	32-bit	64-bit
Official requirement	1GB	2GB
What we reckon	2GB	4GB+

PC MEMORY

Just like Vista, Windows 7 loves RAM. The biggest jumps in Windows 7's performance that we got in our testing were by increasing the amount of RAM in some of our test systems. Running Windows 7 in 1GB of RAM is asking for trouble, with the OS constantly impinging on your hard disk drive for virtual memory. Up the RAM to 2GB and Windows 7 runs significantly smoother. When running the 64-bit version of the OS, performance in 2GB of RAM was similar to that of the 32-bit version, but it jumped up in speed again when we upped RAM to 4GB. The 64-bit version, of course, can address far more RAM than the 32-bit, which is restricted to around 3-4GB. With the current price of RAM at record low prices (around $60 for 2GB), it's definitely worthwhile to spend a little and up the memory if you're running at 2GB.

For notebooks, 2GB is adequate, but more is desirable. Considering notebook hard disk drives are generally slower than desktop drives, the "penalty" for using lots of virtual memory is bigger. Unfortunately, notebook RAM isn't as cheap.

	32-bit	64-bit
Official requirement	1GHz	1GHz
What we reckon	1.6GHz	1.6GHz

PC PROCESSOR

The official word on the minimum processor speed requirements for Windows 7 is 1GHz flat. As only a very few CPUs with less than the 1GHz minimum (barring ultra-low power and VIA solutions) have been released lately, it's a meaningless requirement. Based on our testing, we instead look to a minimum processor spec of around 1.6GHz, which is the speed of the slowest budget processors that Intel and AMD still sell today. For older systems, we had to go back to the Pentium III design to find a desktop processor slower than 1.6GHz on the Intel side — and really, a PIII isn't going to cut it.

For notebook processors, we were dealing with slower clock speeds due to the low voltage nature of their designs. There are definitely sub-1.6GHz processors floating around even in modern notebooks, but we stand firm. 1.6GHz or bust.

	32-bit	64-bit
Official requirement	16GB	20GB
What we reckon	20GB	40GB+

PC HD STORAGE

Hard disk space isn't an issue like it was in the old days; with hard disk drive capacities up to the multi-terabyte mark, squeezing your OS and apps into a small space is less of a concern. We did find it a little funny that the 64-bit version of Windows 7 wanted an additional 4GB of storage. Considering its similar size on disk to the 32-bit version of the Windows 7 RC, the extra room is probably requested for virtual memory (which will be bigger with the larger memory requirements). Is Microsoft's suggested minimum of 20GB enough? Sure, if you don't want any apps.

	32-bit and 64-bit
Official requirement	Support for DirectX 9 and WDDM 1.0 or higher
What we reckon	The same

PC GRAPHICS

Windows 7's 3D Aero interface is just like that of Windows Vista, so you need a DirectX9-compatible graphics card. To confirm your card is DX9-compatible, check its specifications on the manufacturer's web site. We noticed that it's hard to get information from vendor web sites about WDDM (Windows Display Driver Model) compatibility for graphics cards — but it's safe to say this; if there's a Vista driver for your graphics card, then you're good to go with Windows 7.

	32-bit and 64 bit
Official requirement	DVD-R/W drive
What we reckon	The same

PC OPTICAL DRIVE

A DVD drive is necessary to even install the operating system, as it ships on DVD. Why you need a DVD writer is beyond us; although the clue might come from the fact that the specifications here are based mostly on the Release Candidate, which is distributed as an ISO.

SYSTEM TESTS

How does Windows 7 compare on a number of different systems?

CPU	Pentium 4 @ 2.0GHz
Memory	512MB DDR2
Graphics	Intel Extreme Graphics (845G)
HDD	Seagate 80GB 7,200RPM
OfficeBench	116 seconds
Google Earth	26 seconds
Boot time	31 seconds
PCMark Vantage	DNF

YOUR BASIC OFFICE PC

The Compaq Evo D51S was an old workhorse slim desktop that's been running Windows XP just fine for years. Sadly, there will be thousands of these still chugging away running ancient versions of Office in homes and offices around the country. This machine wasn't too happy with its new Windows 7 duties. Though it would boot and run, it was sluggish all-round and a little frustrating to use. The unit's 512MB RAM and older hard disk drive really let it down. The integrated graphics didn't run 3D Aero, and it wasn't terribly happy with Google Earth either.

We upped the RAM in the system to 1GB, and it didn't make a huge difference to its performance. The older hard disk drive and still quite slim 1GB wasn't exactly a winning combination.

If your desktop is around this vintage, then stick with XP, which runs quite nicely.

CPU	Pentium 4M @ 1.6GHz
Memory	512MB DDR266
Graphics	ATI Radeon 7500 Mobile 32MB
HDD	IBM Travelstar 30GB 4,200RPM
OfficeBench	285 seconds
Google Earth	215 seconds
Boot time	52 seconds
PCMark Vantage	DNF

AGED IBM NOTEBOOK

Older IBM Thinkpads tend to be tanks, so you're likely to find some ancient ones still in use. An IBM ThinkPad A31 from 2003 was the lowest spec machine we could bring ourselves to try Windows 7 on. This machine ran a Pentium 4 M (Mobile) CPU at 1.6GHz, was loaded with 512MB RAM and a 30GB IBM 4,200RPM hard disk drive.

This notebook wasn't too happy with Windows XP, let alone Windows 7. Right from the beginning the Windows 7 experience was slow. Shockingly so. Windows took forever to load and populate, the hard disk never stopped grinding and running applications was a Zen-like exercise in patience. Windows 7 Aero didn't run as the onboard graphics adaptor was far from DirectX 9 compatible. Our OfficeBench benchmark took the better part of 5 minutes to run and the boot time was closer to double that of other machines.

CPU	AMD Athlon 64 2800+ @ 1.6GHz
Memory	1GB DDR333
Graphics	NVIDIA GeForce 6600GT
HDD	Seagate 160GB 7,200RPM
OfficeBench	68 seconds
Google Earth	18 seconds
Boot time	32 seconds
PCMark Vantage	2,004

OLD-SCHOOL GAMING PC

This older gaming machine had a few kms on the clock and had received the occasional upgrade since its inception in late 2003. The core of the machine, an Athlon 64 running at 1.6GHz, was as low as we'd go for a desktop processor with Windows 7 (and Vista). The 1GB of memory took us out of the running for a 64-bit install (and made the machine grind along).

The older Seagate hard disk drive also put a strain on things. With a relatively low throughput and constant disk access for virtual memory, it was pretty sluggish all around. The GeForce 6600GT was quite adequate to run Vista Aero, with little noticeable slowdown. Putting some more RAM in the system saw the general usability jump up quite significantly, but if your machine is around this vintage, I'd suggest you stick with what you have (and put the money toward a new PC).

8/10

CPU	Core 2 Duo 6700 @ 2.66GHz
Memory	2GB DDR2 800
Graphics	ATI Radeon HD 2900XT
HDD	2 x Western Digital Raptor 74GB
OfficeBench	39 seconds
Google Earth	6 seconds
Boot time	35 seconds
PCMark Vantage	4,422

DELL 9200 DIMENSION PC

This Dell PC represented a pretty good system two and half years ago. Built for speed and gaming, it has a decently fast Core 2 Duo 6700 processor running at 2.66GHz, 2GB of DDR-800 and an ATI Radeon HD 2900XT. At the time it was a very quick system.

The difference between this PC and many others was the inclusion of two WD Raptor 10,000RPM SATA drives running in a RAID 0 (striped) array. This provided very fast disk performance and gave it a huge leg up in our Windows 7 testing. Subjectively, this machine runs Windows 7 like a dream. As it previously ran Vista quite well, we weren't expecting it to curl up its toes, but with a clean OS install and some fresh drivers it felt like a breath of fresh air. If your PC is around this specification (RAID 0 or not) then Windows 7 will run fine.

7/10

CPU	Core 2 Duo T7300 @ 2.0GHz
Memory	3GB DDR2 667
Graphics	NVIDIA GeForce 8600M GS
HDD	Hitachi 160GB 5,400RPM
OfficeBench	79 seconds
Google Earth	9 seconds
Boot time	26 seconds
PCMark Vantage	2,116

BENQ JOYBOOK S41 NOTEBOOK PC

This 18-month old Joybook from BenQ has had a little work. Well, mainly a RAM upgrade from its default 1GB to 3GB, but it made a world of difference. The Core 2 Duo T7300 was a fairly middle-of-the-road processor for notebooks around that time, and it coped with the OS quite well.

The NVIDIA GeForce 8600M GS is less common, especially in budget notebooks, which more often use an integrated graphics adaptor. In this case, the 8600M GS let us run Aero quite effectively, with no noticeable slowdown.

Any sluggishness for the system was the hard disk drive. Windows 7 (and Vista) are heavy on disk usage compared to XP, with background indexing and lots of virtual memory usage making a big impact. Upgrading to a 7,200RPM 2.5in hard disk drive would see a speed boost, but it's really not necessary. Would we use it? Yep.

8/10

CPU	Core 2 Quad Q6600 @ 2.4GHz
Memory	6GB DDR2 800
Graphics	GeForce 8800GT 512MB
HDD	Seagate 640GB 7,200RPM
OfficeBench	48 seconds
Google Earth	11 seconds
Boot time	30 seconds
PCMark Vantage	4,389

HOME BUILT CORE 2 QUAD PC

This 18-month-old "home built" gaming PC had a good bed of RAM and a decently fast single hard disk drive solution. The multi-cored CPU did a lot to churn through the PCMark benchmark but in our other testing scenarios didn't do a huge amount to speed things up.

The Core 2 Quad Q6600 did keep the desktop and general responsiveness of the system very high, and the large RAM went a long way to reduce the impact on the hard disk drive. Our subjective use of the machine gave us the impression that it ran Windows 7 very comfortably and without issue, though it could be a tad slower than the Dell Dimension when loading software. Though Windows 7 performance on this system was just fine, if an upgrade was in the works, it would most probably be for a faster hard disk drive rather than a CPU, graphics or memory upgrade.

CPU	Atom 230 @ 1.6GHZ
Memory	1GB DDR2
Graphics	Intel integrated 945G
HDD	Western Digital 160GB 4,200RPM
OfficeBench	79 seconds
Google Earth	11 seconds
Boot time	28 seconds
PCMark Vantage	DNF

MSI WIND TOUCHSCREEN

This was an odd PC. We chose it as an example of new systems (both netbook and nettop) running with the Atom processor and older core components commonly seen in netbooks. The Atom 230 1.6GHz coped quite well with the load from Windows 7.

That's where the honeymoon ended. The hard disk drive let this system down; with a little more oomph in the storage this would be a much more responsive system. Subjective testing saw us twiddling our thumbs waiting for Explorer screens to load (3-5 seconds feels like an eternity sometimes).

The integrated graphics wasn't up to the job, but we didn't expect it to be. So, netbook users, should you go for Windows 7? If you've got an SSD-based netbook, a better than stock hard disk drive, or have maxed it out for RAM, we would consider it, but install the Release Candidate or demo version before you stump up the cash.

CPU	Intel Pentium E5200 @ 2.5GHz
Memory	2GB DDR2 800
Graphics	Intel GMA3100
HDD	Seagate 320GB 7,200RPM
OfficeBench	60 seconds
Google Earth	16 seconds
Boot time	22 seconds
PCMark Vantage	2,444

NEW BUDGET DESKTOP PC

We commandeered a new Dell Inspiron 545 Desktop from a colleague. It was en route to his daughter and came in a delightful shade of hot pink. What we were after was a new, budget, big-brand PC. This system, without monitor, sells for $699.

The Intel Pentium E5200 was just fine for Windows 7; its dual-core design and reasonable clock speeds made short work of the basic software we loaded.

The integrated graphics was the real test, and though it's not going to be setting any 3DMark records any time soon, it ran Aero and Google Earth tests just fine.

This system goes to show that even with new, entry-level PCs, there's plenty of power to cope with Windows 7, unlike the entry-level PCs around Vista's disastrous launch.

CPU	Core i7 920 @ 3.6GHz
Memory	3GB DDR3 1440
Graphics	NVIDIA GeForce GTX295 1,792MB
HDD	2 x Hitachi 500GB RAID 0
OfficeBench	29 seconds
Google Earth	6 seconds
Boot time	27 seconds
PCMark Vantage	8,443

ALTECH NRG TORNADO

We contacted Altech to provide us with a machine that would chew through Windows 7 and attempt to show off as best it could. They went a little overboard, but we couldn't help liking the result.

The Core i7 920, in fact any Core i7 processor, was definitely able to deal with the rigours of the new OS.

With triple-channel memory, slowdowns should be obvious if at all. Altech only gave us 3GB, and really, we would have liked much more, as the machine did like to access the disk drives from time to time. The striped disks went a long way toward lessening the impact though.

The high-end graphics of course gave no issue with Aero. Subjectively, the Tornado runs buttery-smooth with Windows 7, with no delay in any OS task you require.

6GB of RAM would have been a welcome addition, however.

FINDINGS...

What we found out about Win 7 performance. . .

After our testing we came up with a general rule of thumb for hardware performance of PCs under Windows 7: if it runs Vista, it'll run Windows 7.

Now, for a more general outline of what you need under the hood to have a good time with the new OS, here's the low-down.

The processor is probably the least important component when considering a Windows 7 upgrade. All desktop processors and most non ultra-low-voltage notebook processors from recent years will provide a comfortable level of performance for Windows 7. If you are running a modern netbook, then Atom processors will do fine, but we would probably steer clear of VIA-running netbooks.

The amount of RAM, rather than its raw speed, has the biggest impact on a system running Windows 7. We could comfortably use systems with 2GB of RAM with basic applications loaded, though running with less than 2GB we wouldn't really recommend. With lower amounts of RAM the amount of virtual memory paging to the hard disk drives goes up, which negatively impacts performance quite heavily.

Disk speed has a pretty big impact on Windows 7. Older model hard disk drives and drives running below 7,200RPM give noticeable performance degradation. Notebook users might not have the choice nor wish to upgrade to quite expensive 7,200RPM notebook drives; but in a desktop, a more recent drive really makes a difference, especially with lower RAM quantities.

Graphics adaptors either let you run Aero or don't. Frankly, the noticeable difference in Aero performance between systems that just scraped in to the minimum specs and the fastest card on the market is negligible. If you're not a 3D gamer, then going beyond an entry-level or mainstream 3D graphics card for Aero is perhaps money not wisely spent. It makes little difference to the overall performance of the system.

FIND OUT FOR YOURSELF

If you're considering becoming an early adopter of Windows 7 but still aren't too sure on how your system will cope with it, run the Microsoft Windows 7 Upgrade Advisor Beta.

It is, of course, based on Microsoft's minimum specs for Windows 7, but does offer advice on how you can get your system up to scratch for Windows 7. APC

WHAT ABOUT NETBOOKS?

Netbooks will get their own version of Windows to run; Windows 7 Starter. A recent announcement saw the three application limit removed from the Starter edition, so let's all breathe a sigh of relief. Starter replaces Home Basic in the lineup, and like Home Basic, cuts out bells and whistles you really don't need or want on a netbook.

Having spoken with a few vendors about plans for netbooks in a Windows 7 world, we're hearing that the next generation due around the same time as Windows 7 launches will pack 2GB of RAM. Another sigh of relief.

Though Starter won't have the same load on a system as the "heavier" versions of Windows 7, 2GB of RAM will make all the difference between a decent, powerful, netbook PC and a glorified paperweight.

For those of us who already use a netbook, then sticking with Windows XP or your favourite Linux installation will be the best way to go for now, then consider Windows 7 on your next netbook purchase.

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WINDOWS 7: FINAL WORD

Mary Branscombe discovers why Windows 7 is Microsoft's best operating system to date. Here's a comprehensive run-down.

Microsoft doesn't want any surprises with the Release Candidate of Windows 7. Not only is it making more advance information available than ever before, anybody who wants a copy can download it right now (or grab it from next month's *APC* DVD), and have complete access to all of its features until next March. While we still can't fully recommend using it on your main PC or in a production environment, in practice the build is more than good enough for day-to-day use. There may be a few extras still to be added to the finished version, but for most purposes, this is it — this is Windows 7. And the good news is that it's superb.

1 INSTALLING AND UPGRADING

From installation onwards, Windows 7 feels pretty slick. The set-up routine matches the Windows 7 interface, featuring the same leafy artwork that you'll see later on the shutdown screen, and the glow of the start-up screen illustrating the graphics test: little finishing touches that make things feel complete. More themes, user icons, photo-realistic system icons and sound schemes show off the accomplished graphics, and the OS includes some striking, unusual and plain bizarre wallpapers that are a world away from Vista's far more staid light streaks.

Windows 7 supposedly runs on much more humble hardware than Vista, although our testing shows that, for the release candidate at least, this may not be the case. However, Windows 7 gives you the perfect opportunity to jump onto the 64-bit bandwagon and unlock any extra memory in your system. The trickiest system requirement involves virtualisation. You can now run a complete copy of Windows XP on the Windows 7 desktop, but only if your processor supports it (and not all of them do). Intel and AMD both have downloadable tools that will tell you either way, but you'll need to go into the BIOS to activate the option — it's always switched off by default.

To get the most useful feedback on how well the Release Candidate installs, Microsoft is asking testers to do a clean install or an upgrade from Windows Vista, rather than upgrading beta installations. That's not really a problem, though, as a clean install takes around 20 minutes. RC1's performance isn't significantly different to earlier versions of the OS, but Microsoft claims to have shaved a few milliseconds off things like startup and shutdown time. It may in part be a psychological effect of the sleek interface, but everything feels smooth, quick and responsive.

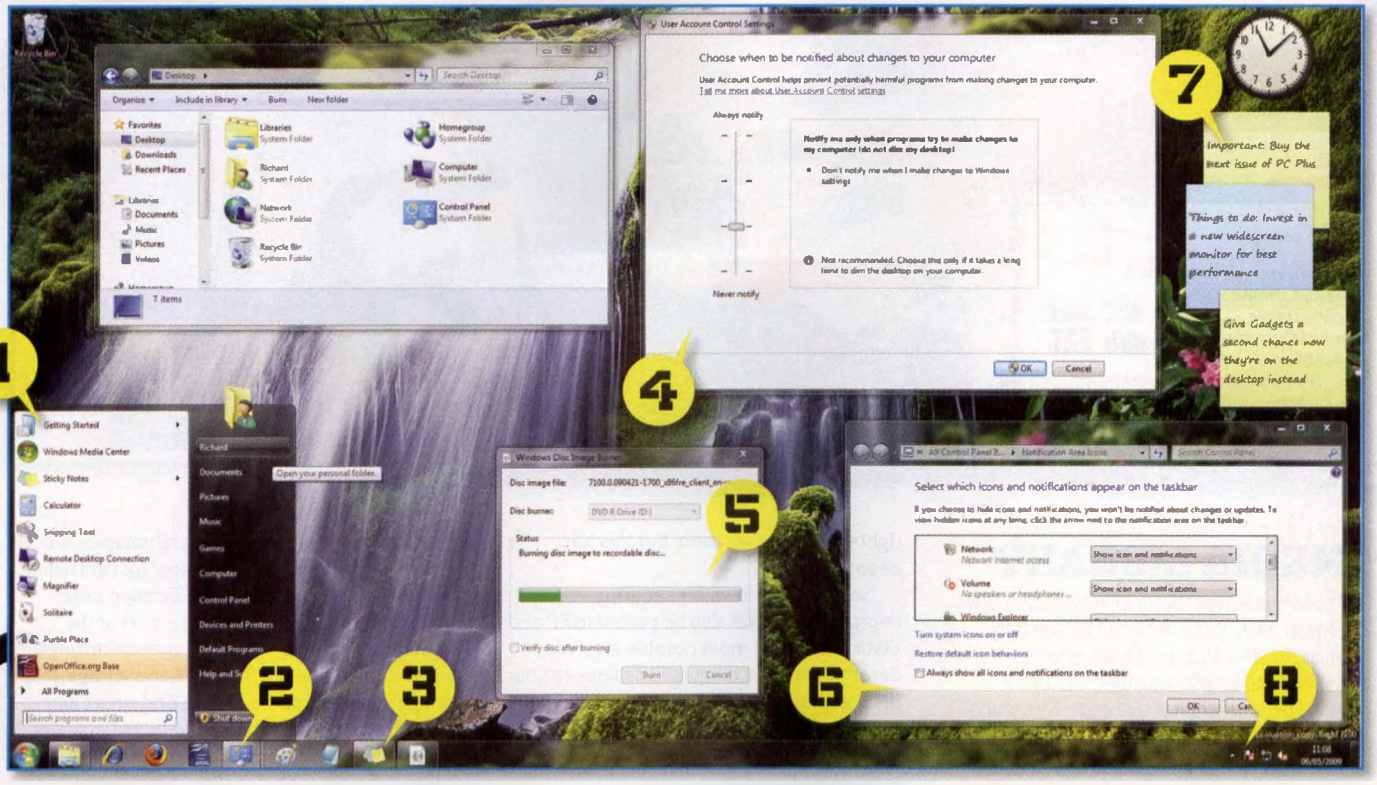
2 THE APPLICATIONS

Many Windows staples have seen a much needed overhaul for this outing, and RC1 tightens some of the remaining bolts. Both Paint and WordPad are now Ribbon-based and fairly competent, although neither is competition for more dedicated applications. WordPad may now support DOCX and ODF files, but without features like word counts and spellchecking, it's never going to pass muster as a fully featured word processor. Still, you can now read and create more complex documents than before and only have to drop back to Notepad for pure text editing.

Other basic tools are all present and correct, including the calculator, a contacts application (although with the push towards online Windows Live services, it remains to be seen if this will take off any more than it did with Vista) and DVD Maker for creating video DVDs with custom menus. The same engine returns in a brand-new feature: burning ISOs to disc without the need for any additional software to be installed.

For email, photo and video editing, instant messaging and the Writer blogging tool (which has both a spelling checker and word count but can't open standard document files), you can download the free Windows Live Essentials, which haven't been updated since the Wave 3 release in early 2009. A new option in Windows Update offers to show details of new software like this from Microsoft alongside updates and patches.

On the entertainment side, Windows Media Player is now divided into a library window and an auto-sizing player window for photos and video. The library view allows you to browse all



YOUR GUIDE TO WINDOWS 7 DESKTOP

01 FAST START-UP
The Start menu is much the same as the one in Vista, but it includes welcome small tweaks like jump lists to get you to your files much faster.

02 QUICK APPS ACCESS
This time, your most-used programs can be put right onto the taskbar, much like the Apple Dock. Running apps get added on to the end.

03 TASKBAR TIPS
A glassy border around the icon means that it's running. A tab on the right side tells you that there are multiple windows available.

04 CUSTOMISE THE UAC
User Access Control is still here, but it can be toned down to only alert you when something important happens. Finally, it's useful.

05 NEW KEY TOOLS
Windows 7 finally provides many much-needed tools, such as built-in support for burning ISOs and the ability to work with virtual hard drives.

06 BANISH MESSAGES
Had enough of programs popping up useless alerts? Get rid of them and reserve your notification area for more important things.

07 GADGETS ANYWHERE
The much-ignored Sidebar is effectively gone, but you can now pin Gadgets directly onto the desktop itself. Third time lucky?

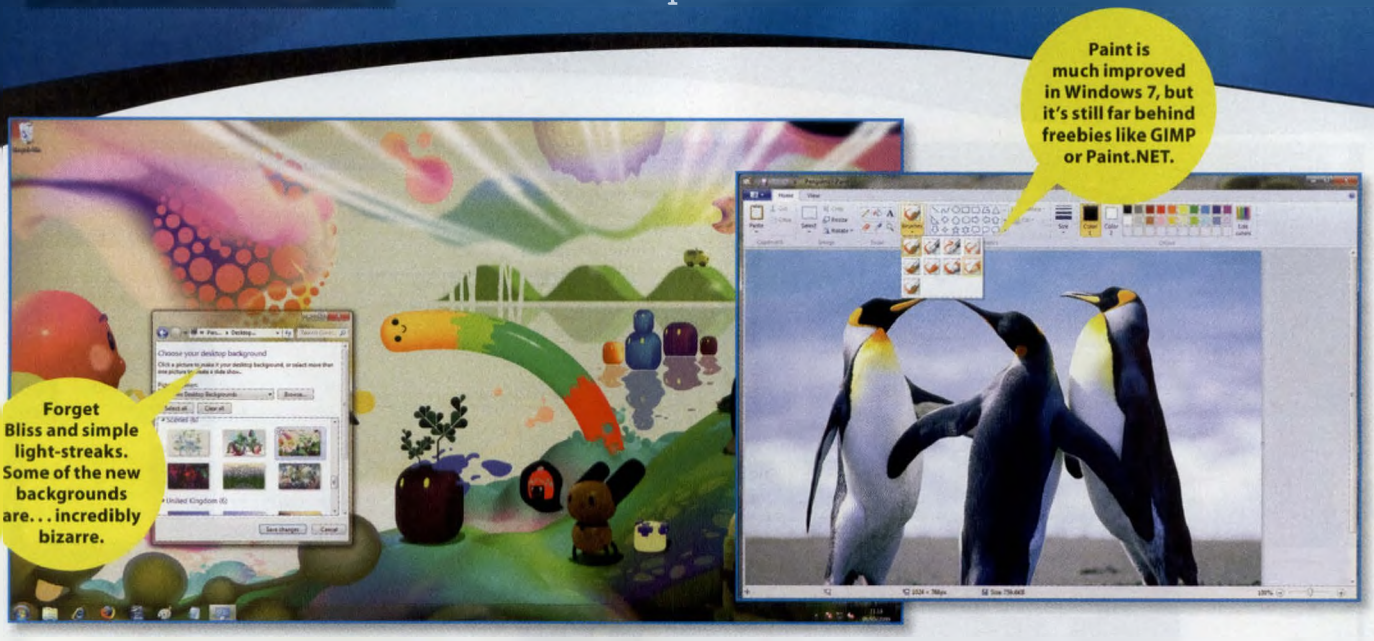
08 EXPOSE DESKTOP
As well as a better clock and quieter apps, the new Peek button lets you hide all your open windows and see the Gadgets running behind them.

of your own content and shared libraries, including media held on media players, shared PCs and removable drives. Following the Windows 7 principle of shutting up and getting out of your way, browseable devices appear silently in the library pane instead of interrupting you with a focus-stealing dialog. Media Player finally also includes a MOV codec so you don't need to install QuickTime just to view video clips that were recorded on a digital camera.

If you're keen on getting rid of software that you see as unnecessary, the Release Candidate lets you remove more programs than before — including Internet Explorer. However, it's still worth keeping IE around if you regularly visit sites that rely on plug-ins or insist on specific browser versions and applications as part of their security routines. RC1 also keeps the detailed options made available in the beta for setting which programs have default associations.

3 SECURITY FEATURES

Perhaps the best news for Vista users is that User Account Control has been called to heel. The basic idea was never a problem, but its incredibly irritating execution frustrated many. The new approach is more granular, letting you keep warnings for changes requested by software but no longer jumping up every time you make a change, for example. Earlier builds featured a security hole that allowed apps to elevate their


Paint is much improved in Windows 7, but it's still far behind freebies like GIMP or Paint.NET.
Forget Bliss and simple light-streaks. Some of the new backgrounds are... incredibly bizarre.

MEDIA LIBRARY

The Media Player library interface has a new Stream menu that's designed for sending music to other PCs and DLNA-enabled devices and for playing music from your home network when you're away. Streaming is disabled by default and can initially be confusing to set up, but it's simple once you have appropriate machines connected. Other PCs on the same network that are sharing content appear as libraries in Media Player, and if they're in the same homegroup you'll see them in Explorer too. This lets you use the new library functions such as sorting videos by length or viewing all of the photos and videos you took on a particular day. Incidentally, while the Windows+E shortcut now opens My Computer, clicking the Explorer icon still opens your libraries, which is a very powerful way to see files from lots of different places at once. If you turn on remote control in Media Player (and leave Media Player running), you can use the 'Play to' option on the context menu in either Media Player or Explorer on a second PC to create a playlist with music, videos and photos that plays on the first PC. To do so, choose the third option ('Allow internet access to home media'), set up two machines with the same Windows Live ID (do this by downloading the Live ID Sign-in Assistant when Media Player asks you to) and leave one PC running Media Player when you travel with the other. You'll now be able to play music and videos from your home network. The quality will depend on the setup of the network you connect to on the road: some businesses block this, and poor bandwidth can make for jerky playback. However, when it works, it's very simple.

rights in the background, but this has been fixed.

Some of Windows 7's security improvements will also be ported to XP and Vista. One of the most notable involves detecting trojans disguised as links to your files, with the fix being that Windows will no longer allow programs to appear in the Autorun dialog unless it's set up to mimic a read-only CD.

As an example of how even something this simple requires a lot of work behind the scenes, the read-only provision is there so that 3G dongles and similar kit can still pop up their installer software (although with the built-in 3G drivers you may not need them — a welcome alternative to badly written communications software that interferes with Wi-Fi networking). That said, USB-based app launchers may be more difficult to use.

4 SETTINGS AND PANELS

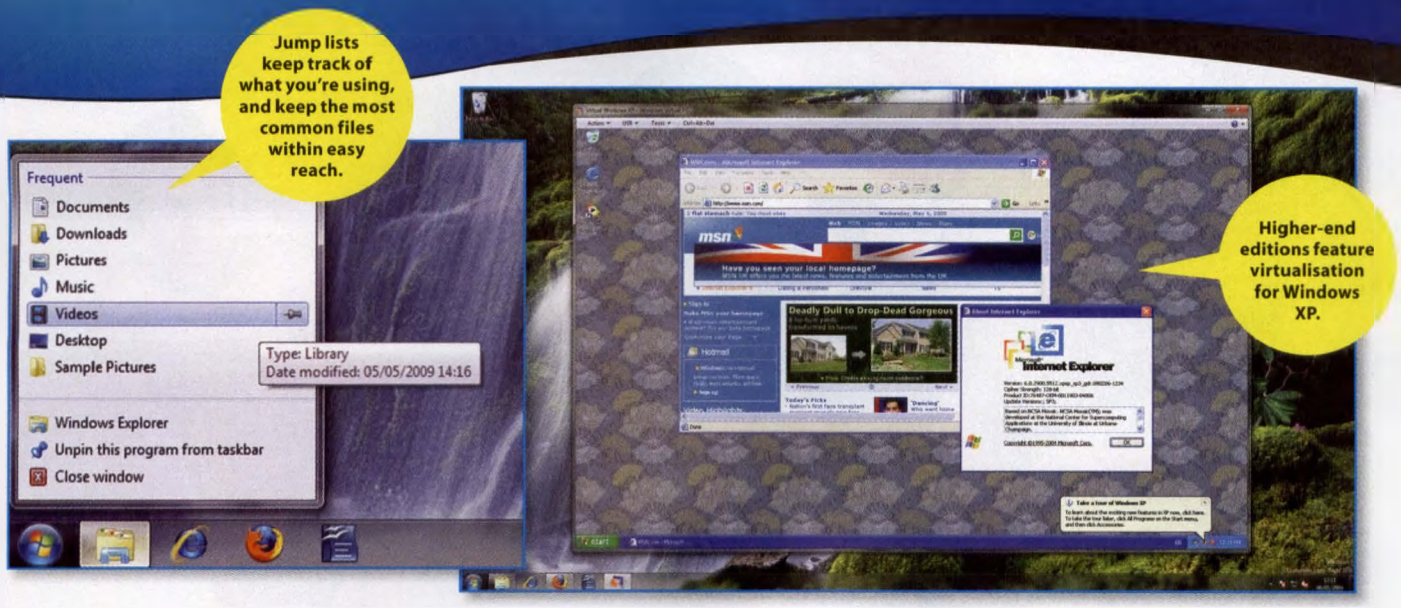
The Control Panel embodies one of Windows 7's main philosophies — search. Vista introduced the idea of searching for programs and tasks the way you search for documents and files instead of hunting through control panels or memorising where tools were placed, but what you could find this way was limited. Windows 7 expands the concept to virtually everything on the system, making searching your computer a matter of asking for what you need rather than wasting time hunting for it.

In many cases, the OS attempts to save time by simply not presenting you with options you don't need. The Windows Sideshow control panel doesn't appear unless you plug in a Sideshow device, and you don't see offline file options until you've set a network file to be available offline. The options for turning off system icons like the clock and volume control have been moved into the panel for controlling what icons appear in the notification area. The Default Location setting is part of the Locations panel and text-to-speech settings move under Speech Recognition settings. It might take you some time to find where key features have been relocated to, but in general any settings that have been moved can now be found in a place that makes more sense.

Minor scavenger hunts aside, this is a better solution than the overly simplified options of some interim builds. Microsoft wants to take the complexity out of Windows, in part to stop software developers (including those at Microsoft) neglecting to fix bugs on the grounds that users can work around them by changing low-level settings. That's a chicken and egg problem, because there are still too many programs that need workarounds for Microsoft to be able to remove some options (like being able to set the print processor for a printer). The compromise is making the settings that everyone needs easier to find and easier to work with, and putting advanced options where advanced users can find them.

This is usually done in a very intuitive way. The foreign fonts that are installed for compatibility are marked in the Fonts control panel as being hidden from your applications by default, for example, so they don't clutter up the list of fonts to choose from in your word processor. But you can still see them in the Control Panel if you need to, and you can un-hide them — or delete them permanently — instead if you want to.

The only demoted control panel that might be hard to find is the one for game controllers. It's not listed anywhere obvious, but you can get to it quickly enough by searching for it; as in the beta, you can type in a wide range of



synonyms for what you want to do and get right to the relevant tool, so this isn't too much of a problem.

There are still only a handful of devices that give you the customised DeviceStage experience (plus a generic DeviceStage for printers that shows the print queue, paper options and print settings), but until these appear, you can right-click any device in the Devices and Printers panel to get a list of relevant tools.

5 INTERFACE ISSUES

Many niggling interface issues have been resolved, often through subtle changes. You can fit more icons on the taskbar, and it's easier to spot the lines that tell you when an app is running and when you have multiple windows open. Colour highlighting on the taskbar icon you're hovering over persist when you move the cursor onto the thumbnail previews, making it less likely that you'll accidentally bring up previews for a different app when you move back down to the taskbar. If you have too many open windows for thumbnail previews to fit on-screen, the list you get instead now lets you close, resize and move the windows. Pausing on a thumbnail on the standard Alt+Tab view gives you a handy 'Aero Peek' preview.

Jump lists — recent items — of relevant files and tasks for apps are now truncated at 10 items, but you can increase the number, and more apps have been given custom jump lists. Control Panel, Remote Desktop and PowerShell show recent items, Media Player lets you choose between music you've played the most and music you've played recently, and IE8 offers InPrivate browsing and new tab options as well as recently viewed pages. Apart from bug fixes, the other main difference in the release version of IE8 included here is a set of improved touch gestures.

6 READY TO RELEASE?

The beta of Windows 7 was good enough that, in previous years, Microsoft might well have pushed it out as a Release Candidate. Corporate vice-president for Windows Platform Strategy, Mike Nash, practically said as much when he announced RC1: "We get to the Release Candidate in the mindset that, just as we wanted people to treat our beta the way they treat an RC, now we want people to treat our release candidate the way they treat a final product."

In one sense, that's code for 'don't wait for SP1'. It also indicates that Microsoft is treating the Release Candidate as the finished product, bar any final bug fixes. More importantly, it's as much a chance for customers to give the system a good test drive as it is for getting feedback. At this point, the overwhelming majority of decisions have been well and truly made, with only last-minute polishing and essential tweaks likely to be added to the user experience before the first release of Windows 7 proper.

This said, some applications aren't quite finished. XP mode is still firmly in beta and Media Center needs a final layer of polish, to say nothing of content partnerships around the world. However, these are niggling problems. If the earlier beta came as a pleasantly surprising preview, the Release Candidate is the full Windows 7. All the signs indicate that it will be a much, much better OS than Vista ever was. Better yet, download it now (or wait for next issue's cover DVD) and you'll have full access to it until next March, giving you time to decide whether or not you want to upgrade. APC

WIN 7 EDITIONS

WINDOWS 7 HOME PREMIUM

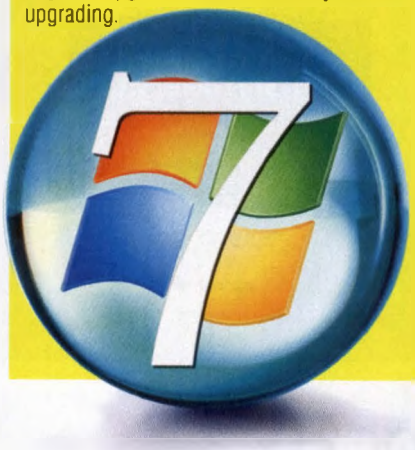
You get Aero Glass, multitouch and Media Center, but none of the business features. If it wasn't for the lack of full image backup tools and XP mode, this version would be ideal for home use.

WINDOWS 7 PROFESSIONAL

The standard business version adds Remote Desktop, image backup, the encrypting filesystem (but not BitLocker, sadly) and the ability to join a domain — plus it can run XP mode.

WINDOWS 7 ULTIMATE EDITION

If you want 'enterprise' features like BitLocker, VHD Boot and multiple language support, you'll be able to do a Windows Anytime Upgrade to unlock them by upgrading.



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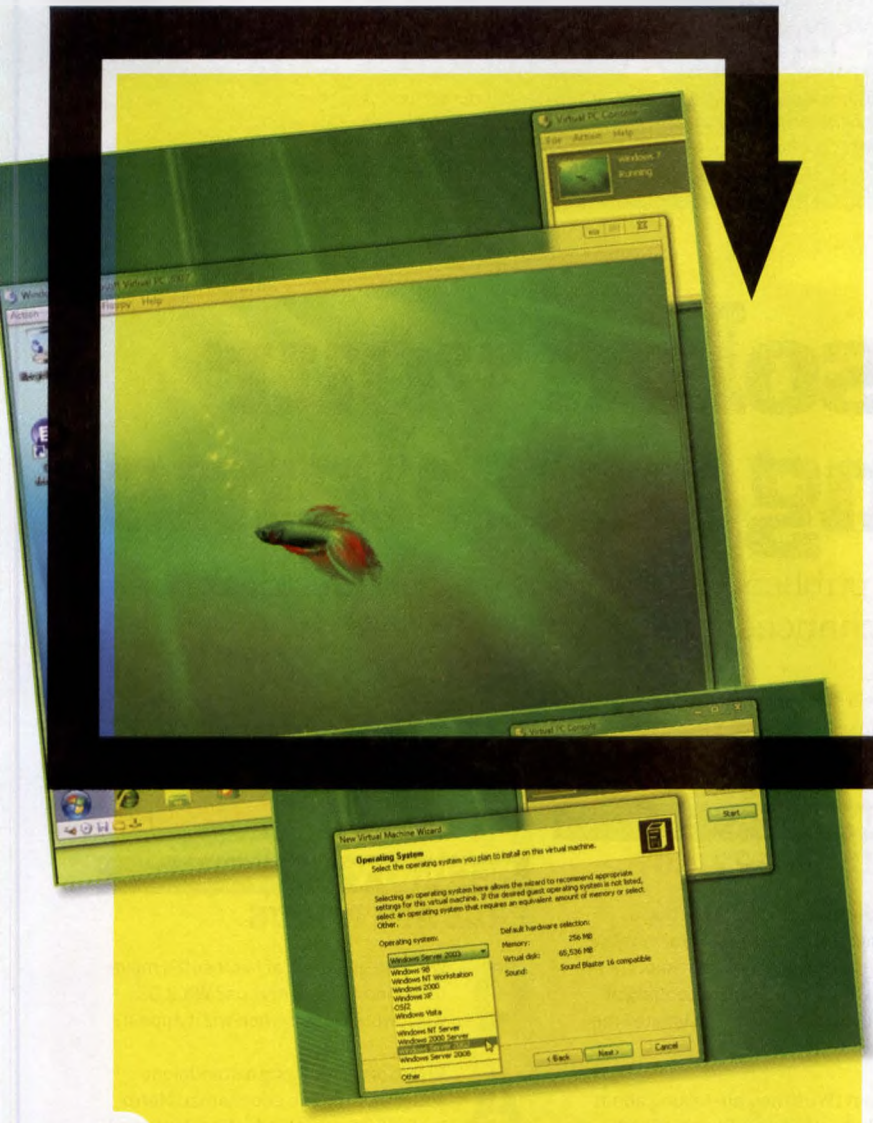

WORKSHOP

HOW TO WIN 7: DUAL BOOT OR VIRTUALISE

Try the latest operating system technology without risking the health of your current system. We show you how.

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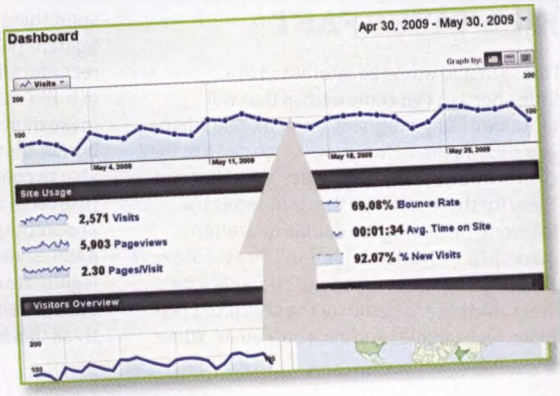

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WINDOWS

KILL TASKS FAST

I thought you would be interested in a little shortcut I've come across that will terminate hung programs immediately when you click on them. To create it, you need to right-click on the desktop and select 'New shortcut'. Then, for the location of the item, enter the following (including the double quotation marks): 'C:\WINDOWS\System32\taskkill.exe /f /fi "status eq not responding"'. Now click on 'Next' and enter a name for the shortcut (Task Killer, for example) and click on 'Finish'. When you next have a hung program, just click on the shortcut to close it.

Edward Young

MULTIMEDIA

LEGAL DVD COPYING?

Q It infuriates me that when I buy a commercial movie DVD, I am unable to legally or easily make a backup. I hear that there is a move to make the copying of Hollywood movie discs legal. Can you tell me more about it?

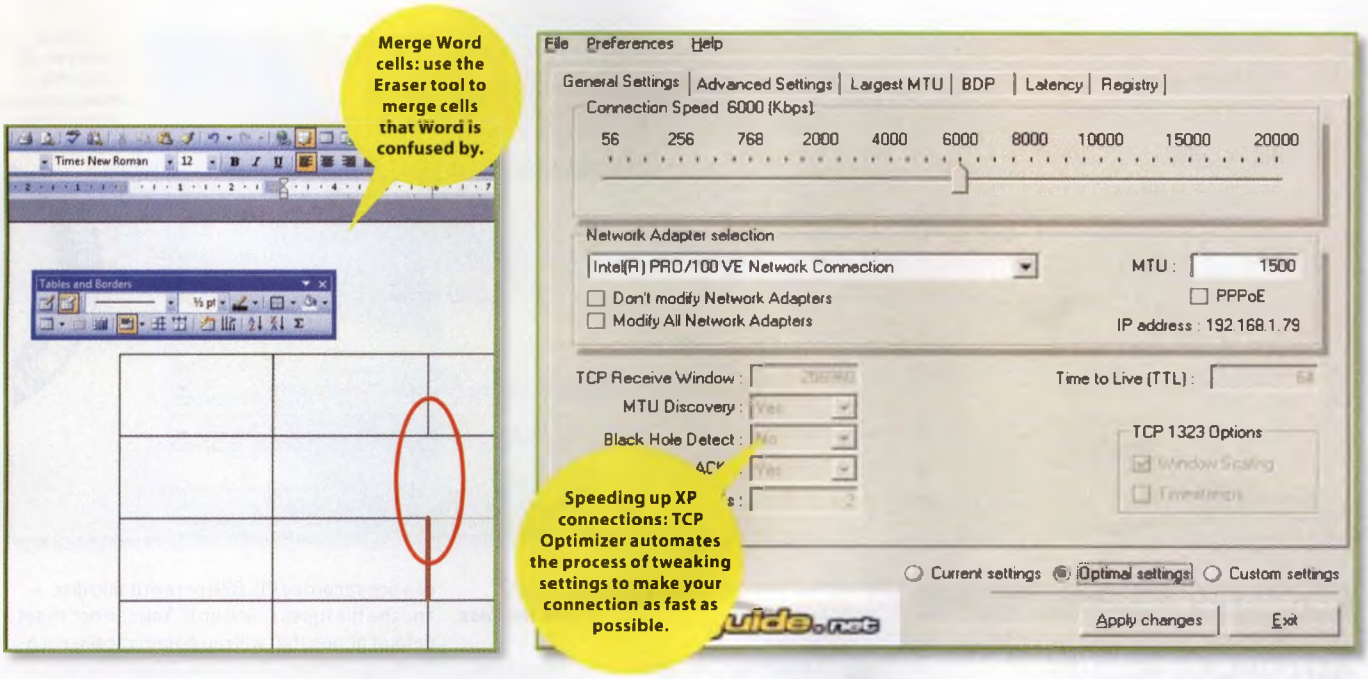
A It's not DVDs they are talking about but high-definition Blu-ray discs. Getting the green light for the latest evolution of the Blu-ray (BD) format is something called Advanced Access Content System (AACS), a technology which lets Blu-ray recorders/burners copy and store the content of a Blu-ray disc to a PC or device. It won't let you make more than one copy and you'll need a burner that's actually enabled with AACS and able to connect via the net to the AACS centre to receive authorisation for that copy. Apparently the studios are about to sign up to AACS, showing the consumer demand for legitimate copying is now finally being considered seriously. Call us cynical but we think this is all about the studios trying to drive adoption of the Blu-ray format, as well as making extra revenue from it. Although initially users can only make one copy, studios can, if they decide to, allow more copies but charge for each extra one.

SECURITY

FREE ANTIVIRUS

Q What do you think of Microsoft's move to launch a free antivirus? What OSs will it work on and when will it appear?

A Microsoft is readying a standalone antivirus program codenamed Morro that will be available for free download later this year and work with XP, Vista and Windows 7. It's a version of the Live OneCare service which Microsoft has just discontinued in the US. The beta version of Morro could be out by the time you read this, so Google it to see whether it's available. We think this is a precursor to Microsoft eventually making basic antivirus protection an inherent part of its new operating systems, thus giving it more control over security and how it integrates with its software. With hindsight, it's a wonder this was never done in the first place. It will force the third party security makers to value-add their products to differentiate. Already, the latest McAfee now comes with "Family Protection"


Merge Word cells: use the Eraser tool to merge cells that Word is confused by.
Speeding up XP connections: TCP Optimizer automates the process of tweaking settings to make your connection as fast as possible.
File Preferences Help
General Settings | Advanced Settings | Largest MTU | BDP | Latency | Registry
Connection Speed 6000 (Kbps)
56 256 768 2000 4000 6000 8000 10000 15000 20000
Network Adapter selection
Intel(R) PRO/100 VE Network Connection
MTU : 1500
Don't modify Network Adapters
Modify All Network Adapters
PPPoE
IP address : 192.168.1.79
TCP Receive Window :
MTU Discovery :
Black Hole Detect :
Time to Live (TTL) :
TCP 1323 Options
Current settings
Optimal settings
Custom settings
Apply changes
Exit

software that gives parents the ability to monitor and track their child's online activities.

WINDOWS

SPEED UP XP CONNECTIONS

Q I now have two PCs connected via Ethernet to my broadband router. The one running Vista generally downloads faster than my XP PC connected to the same router. Is this a Windows XP/Vista difference I have to put up with, or can I do something about it?

Holly Gibson

A Determining why one PC downloads faster than another is generally very difficult, as there are so many settings to investigate. In theory, there should be no download speed difference between your two PCs. However, because Vista always seems better configured to broadband usage, that machine is probably more indicative of the throughput you're likely to achieve from your router, and therefore your XP machine needs some tweaking.

The best program we know of to do this is the Speedguide.NET TCP Optimizer (**www.speedguide.net/downloads.php**). With it we have successfully improved download speeds on XP machines by 25 per cent and more. Just download and run the program, select the maximum broadband speed, and click on the 'Optimal settings' radio button followed by 'Apply changes'. After rebooting, you should see a marked speed improvement.

If you don't see any change for the better, there are various settings within the program that you can try out. Try experimenting with these, making sure that you read the documentation before you get started, of course. If your speeds still don't improve, or even deteriorate, you can always restore your PC to its original state by selecting 'File > Restore backed-up settings'.

OFFICE

MERGE WORD CELLS

Q I often create tables using Microsoft Word and sometimes need to merge cells together to make room for text and objects that I want to put in them. However, sometimes the Merge option is greyed out even though I'm sure the two cells could be merged. Why is this, and how can I merge the cells anyway?

Henry Carter

A The situation you describe usually happens when one or more lines appear to be connected to each other but internally — and as far as Word is concerned — they're not. In these situations, the software can't see how to merge the two apparently unconnected cells. There's a simple solution to this, which is not to bother using the Merge Cells option at all. Instead, select the Tables and Borders toolbar, and click on the Eraser tool. Now you just have to click on any cell borders that you would like to remove in order to make the lines disappear.

INTERNET

MULTIPLE IE8 SESSIONS

Don't you hate it when you want to open more than one account from one mail provider, ie. Gmail, and you can't because your browser does not handle multiple sessions? IE8 has now fixed this. Click on 'File > New Session' and you can now have several sessions and webmail accounts open.

SECURITY

GPS TRACKING DEVICES

Q I keep hearing about GPS tracking devices that will let me keep an eye on my teenagers — where can I get those in Australia?

Sandra Levitt

A There are a bunch of dedicated GPS receivers that can be planted on a child to let you keep an eye on their whereabouts, but they are mostly for the US market and we can't imagine teenagers would like to carry one. However, Google has launched a service called Google Latitude that now runs on some BlackBerrys and Android devices and is expected any day now for the iPhone. Latitude synchs in with the device's GPS and maps the device's location on a Google Map. You can then log in to Google Latitude via the PC and find out where the device is on the map. This requires the owner of the device to approve being monitored, but Google is not selling Latitude as a monitoring service anyway, rather as an extension of social networking, where the owner of the device knows where all his or her friends are at any one time. So if you're really concerned about where your teenagers are on a Saturday night, buy them a smartphone like a BlackBerry or iPhone on the condition that they have Google Latitude enabled.

In Vista, you can set AutoPlay's default options in the Control Panel.

WINDOWS

HOW CAN I TIDY UP THE AUTOPLAY MENU?

Q AutoPlay is driving me mad. Whenever I plug in a flash drive, I'm confronted with a number of options, many of which relate to programs I've uninstalled. Normally I just want to browse the files on the drive anyway, but there are some occasions when it would be handy to open stuff automatically. I can see how AutoPlay is supposed to save me time, but at the moment cancelling options each time is slowing me down. Is there a way to edit the options available so that I can get rid of all the rubbish and get it to do just what I want?

Catherine Ross

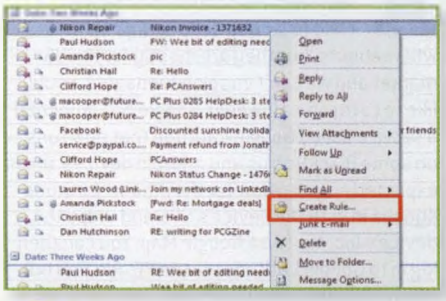
A AutoPlay is designed to save you time hunting for supported software whenever you insert a removable drive into your PC. When you insert a removable disk or drive, you're presented with a list of AutoPlay options. What's on the list will depend on the kind of media that you're using and the software that you've got installed on your PC. However, in some cases you may have entries that refer to software that has been uninstalled — just as you describe on your system.

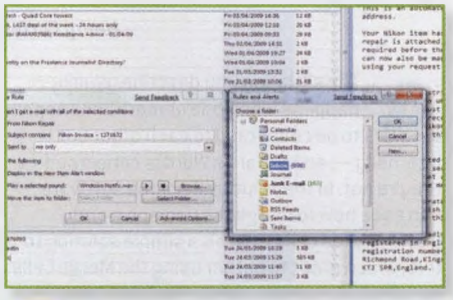
The list of actions changes depending on the type of media you connect — be it a flash drive or a pre-recorded CD, DVD or rewritable disc — and the file types found on it. You can opt to set a default action that will run automatically each time you connect the media, or you can select one from the list. This is much quicker than sifting through the Start menu to find the right program each time you want to use a disc or thumb drive. However, there is scope for AutoPlay to be abused, which is why from Windows 7 on it will only apply to removable optical media and not USB drives.

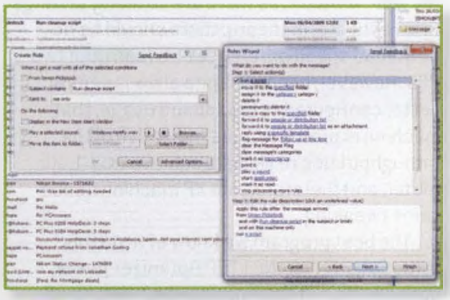
That's great for the future, but for now you'll have to put up with the AutoPlay menu popping up when you connect your flash drive. However, you don't have to put up with its cluttered state. In Vista you can edit the AutoPlay menu in the

3 STEPS HOW TO SET UP A NEW RULE IN OUTLOOK

Keep your inbox tidy by automatically filtering your emails.







1 CREATE A RULE

Creating a rule in Outlook is very simple — all you need to do is go to the Tools menu and then select 'Rules and Alerts'. Alternatively, to create a rule based on a specific email, right-click on the email and choose the 'Create rule' option. You may find that this method is quicker.

2 SET THE CRITERION

Rules can be set to function on a variety of parameters, including the subject line, the sender and the recipient. You can also make it do more things than simply moving the emails. Here the rule moves the email to a new folder and plays a sound when a particular set of conditions is met.

3 TRY THE ADVANCED OPTIONS

The advanced options open up a whole new realm of actions. When a rule's criterion is met, you can have Outlook run an external application or even a script, allowing you to do things like remotely starting a script that seeks out and emails you a specific document.

Control Panel. To do so, head over to the option to 'Play CDs or other media automatically'. For each media type, you can choose the action you want. Pick 'Ask me every time' if you want to see the AutoPlay menu when a disc is inserted; if not, you can set a default action. Alternatively, if you want to turn AutoPlay off completely, clear the box at the top of this window marked 'Use AutoPlay for all media and devices'.

If you're using XP, you'll need to open My Computer and right-click the device that you want to manage. Next, select the AutoPlay tab. You can now select the content type that you want to edit and select the action you want triggered by this kind of content. To display the AutoPlay menu, ensure 'Prompt me each time to choose an action' is selected. Click 'OK' to confirm.

Editing default actions is all well and good, but what about AutoPlay entries that point to programs that no longer exist? Not all applications clean up after themselves properly when you uninstall them, and one piece of litter that's often left behind is an orphaned AutoPlay entry. You can't remove these in the Control Panel, so you'll need to use CleanHandlers to tidy them up for you. This is a standalone executable that supports both Windows XP and Vista. The program is designed to scan the AutoPlay menu and display the options that it contains. You can manually delete items if you want, but you can also get the executable to find and remove any orphaned options automatically.

Download the program from **http://windowsxp.mvps.org/autoplayhandlers.htm** and unzip its contents on to your PC. Run the executable file to see the contents of your list. You can then select an entry to see which kind of media it supports. Click 'Scan and fix invalid entries' to check each handler and remove any orphaned ones. This shouldn't take long. Click 'Refresh' to see the updated list.

EDITING

COOL FREE VIDEO EDITING SOFTWARE

Q I've created a Windows Movie Maker project and when I add transitions to it (like fade out between each picture) and play back, then it plays back really erratically, ie. does not play back smoothly. I know that it isn't an issue with the program as I've played back on XP and it's OK with that. I did some research on issues with Movie Maker on Vista and discovered lots of people having similar issues applying transitions, but could not find any info on hotfixes or patches available to fix this issue. Do you know of any solution, or can you point me in the right direction?

Tony Farr

A It's a known bug in Movie Maker, there is no real fix to it, and it has to do with the number of transitions you use. Our advice is to try other video editing software. If you're doing serious movie editing, obviously Adobe Premiere, Sony Vegas 9 or Final Cut Pro, but we should also point you to some cool new editing software called Super LoiloScope MARS that's aimed at first-time video editors.

With a name like that it could only come from Japan, and at the risk of this sounding like hyperbole, Super LoiloScope MARS is literally taking the world by storm, receiving rave reviews for its radical, user-friendly, drag-and-drop user interface. Produced by a couple of brothers whose original job was making games, it's probably the most intuitive video editor we've seen and packs a lot of fun into the bargain because it feels more like a game than a sterile editor. You can download a free trial from **http://loilo.tv/product/1/purchase**. The full version is available for US$69.

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86 insider tips

HOW THE PROFESSIONALS DO IT

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WINDOWS VIEW

Get free Enterprise virtualisation at home

Hyper-V Server gives you scalable enterprise-class virtualisation at home, and it's completely free — no strings.

APC EXPERT

JAMES BANNAN

James Bannan is a systems manager at St Leonard's College (Vic) and *APC*'s resident Windows expert.

Microsoft's hypervisor virtualisation solution — Hyper-V — was first introduced in Server 2008 and has become the most prominent technology within its server range, making quite a few industry inroads against VMware's market dominance. Server 2008 is designed for businesses and is priced accordingly, but if you want to implement Hyper-V cheaply and easily, you can actually do it for free. Microsoft Hyper-V Server 2008 is a standalone OS that includes the Hyper-V hypervisor and a WMI interface for remote management. It's built on Server 2008 and it uses the common kernel and driver model, so it works across a wide range of hardware platforms.

Although it's free, Hyper-V Server is actually very scalable. It supports up to 4 CPUs with up to 4 cores each, 32GB RAM (1GB is reserved for the parent OS) and a maximum of 192 virtual clients. It is a 64-bit OS, so the system CPU must be 64-bit and support either Intel VT or AMD-V, as well as hardware-based DEP. Most relatively recent CPUs meet these requirements, but check the vendor web site to make sure. The (supported) virtual clients can be Windows XP/Vista/2000/2003/2008 or SUSE Linux Enterprise 10, and can be either 32-bit or 64-bit. Unlike the Hyper-V role on Server 2008, Hyper-V Server doesn't come with any guest licences, so each virtual guest you install has to be licensed accordingly.

The parent partition is just designed to run Hyper-V, so there's a certain inherent inflexibility, as a Hyper-V Server system can't be made to also function as a file, print or web server. Hyper-V Server doesn't have a local GUI. You can perform limited management of virtual guests at the console, but the principle management method is using Hyper-V Manager from a remote system (Vista SP1 or higher). This is available as a free download from Microsoft. In a business environment you can also manage a Hyper-V Server system with SCVMM (System Center Virtual Machine Manager), and you can migrate VMs between Hyper-V Server and Server 2008 systems with the Hyper-V role enabled. VHDs created with Hyper-V will also work with Microsoft Virtual PC. VMs can be backed up with Live Backup and you can take running snapshots. You can download the bootable DVD ISO for Hyper-V Server from Microsoft: **www.microsoft.com/hyper-v-server**. The download is around 1GB in size and you don't need a product key.

Although robust enough to act as an enterprise virtualisation platform, Hyper-V Server runs well on anything that meets the basic hardware requirements, so home desktops make great virtualisation systems. You're only limited by how much memory and storage you can afford to make available. It's a great platform for testing, development, labs or system consolidation. At the time of writing, Hyper-V Server R2 was available as a release candidate. This offers much better hardware support — up to 8 processors and 1TB of RAM as well as Live Migration and Host Clustering — making it an excellent business tool. It will support Server 2008 R2 and Windows 7 as guests and it's still free, so anyone can get their hands on it, from home enthusiasts to IT Pros. Check it out at **www.microsoft.com/hyper-v-server/en/us/r2.aspx**.

LINUX WINDOW

The penguin and the netbook

With all the talk of Windows 7 and what it can do for the netbook, Linux is still a very valid choice.

APC EXPERT

ASHTON MILLS

Editor of the Linux Pocketbooks series, and now with CHOICE magazine, Ashton has been a tech journo for over 13 years, including five years with APC.

With Canonical's release of the Ubuntu Netbook Remix, Linux on the netbook platform got a bit of a boost. The irony is not lost that netbooks began life with Linux when ASUS released the first Eee PC. Linux wasn't just efficient on the low-power platform; its use also helped pin the netbook as a sub-$500 PC, thanks to the lack of a Microsoft tax.

But this didn't last long. As the popularity of netbooks rose, it was clear to everyone — hardware manufacturers as well as operating system vendors — that a new market had emerged. For Microsoft, netbooks probably couldn't have come at a worse time. Traditionally, notebooks run the same flagship version of Windows as desktops. For Microsoft it's about standardising a platform, and with laptops packing as much power as desktops (only at a premium for portability) it's easy to have them run the same version of Windows as desktops.

But netbooks don't pack the same power and, unfortunately for Microsoft, its flagship Windows at the time was Vista, the most bloated and heavy Windows to date. It was not a match made in heaven.

But Linux was. Leaner and faster than Windows, happy to pair itself down for a lower-end platform, provide all the applications you'll ever need, and do it all for nothing. Well, substantially less than paying for Windows licences.

It didn't take long for Microsoft to respond. It reacted by both heavily lobbying netbook vendors and at the same time drew out the retirement for Windows XP, the only recent Windows operating system capable of running efficiently on the platform. And while Windows XP works, it's a bit like fitting a square peg into a round hole — it was never designed to run on the platform, and doesn't make best use of screen real estate.

Today, it's quite hard to find Linux-based netbooks and while there is no doubt some measure of manoeuvring by Microsoft at fault (even when netbooks from a manufacturer came in both Windows and Linux versions, the Linux version couldn't be seen to be sold at a cheaper price and instead had a larger hard drive or similar), not all the blame can be laid at Redmond's feet — some users who did purchase the Linux versions returned them saying how unintuitive they were compared to Windows.

And that comes as no surprise. While Linux desktops have jumped in leaps and bounds in recent years, they don't look or act like Windows. And rightly they shouldn't: the Windows interface paradigm isn't the only one and not necessarily the best one (Apple fares better here than anyone) — but it is, however, what people are used to.

If the first Linux netbook came with an interface that was Windows-esque, we may well have seen a different response.

That wasn't the case and, though Microsoft is now dominating the market with Windows XP (it's good to see Linux competition work at least), it actually gives space for Linux vendors to innovate. And the Ubuntu Netbook Remix shows what's possible when you tailor an OS to the hardware, instead of the other way around as is so often the case. It doesn't look like Windows, and it doesn't look like most Linux desktops either. It maximises the screen real estate and provides a brilliantly intuitive interface for the diminutive platform.

If you have a netbook, give it a go (head to **www.ubuntu.com/getubuntu/download-netbook**). And keep an eye out for what other vendors may soon be releasing — if you don't mind playing with beta software, the Intel-sponsored Moblin recently reached 2.0 beta and can be found at **moblin.org**. This, too, promises to provide a netbook-optimised — in both interface and performance — alternative to Windows. Though it's early days, Linux on the netbook is still a match made in heaven, if you can see past the ageing Windows paradigm. APC

The Linux UI in the past has been a drawback. These days the UI is much more user friendly.

APC EXPERT

ASHWIN MEHRA

Ashwin researches his purchases obsessively. He doesn't like to pay more than he should and knows all the tricks in the book on getting a bargain.

CAMERAS

Use Flickr to find cameras

Cluey readers are using Flickr's "Camera Finder" as a camera research guide.

Popular image hosting site Flickr introduced the "Camera Finder" service as a way for photographers to view photos taken by a specific camera. But it's also proving to be a fantastic aid for anyone researching a camera purchase. Camera Finder provides statistics on what camera brands are the most popular among Flickr's users, also breaking the figures down by model, as well as by categories such as point-and-shoot, DSLRs and camera phones. This is useful if you want to get a sense of where your camera sits in the market, and usage graphs tell you whether it's rising or falling in popularity.

Best of all, once you have selected a likely camera, you can then check the thousands of photos taken with it. For instance, I went to the information for a Canon PowerShot point-and-shoot I was intending to buy and looked up photos taken with it under various categories, such as "Recent, Interesting, Portraits, Landscapes, Night, Action and Macro," giving me a good idea of its capabilities across the board. The Night photos told me it performed surprisingly well with a flash.

In my search, I was surprised Canon is so dominant, with Canon SLRs making up three of the top five cameras owned by Flickr users. Also surprising is the iPhone camera's meteoric ascent to the number 4 position overall, ahead of any dedicated point-and-shoot cameras.

APC EXPERT

JOHN CHANG

John is an *APC* reader and PC do-it-yourselfer. He's impressed by Google Squared.

SEARCH

Google Squared put to use

Google Squared is perfect for geeks looking for PC information.

When Google first released Google Squared, a new tabled view of its search results, I assumed it was a quick and dirty response to Wolfram Alpha, the new engine that tries to compute answers to search queries and delivers them in an encyclopaedia-style format. But I was wrong. In my humble opinion, Squared is an astonishingly useful service for anyone researching topics that sub-divide into areas that can be lined up in a grid. Take PC parts, for example. Type in graphics cards (the one area of PCs that does my head in) and you get a listing of most of the graphics cards on the market. Narrow the search down to a specific model and Google Squared returns all the various branded versions of it in a neat table that shows a photo of the card and columns covering maker, chipset, clock speed, video memory and so on. While there are comparison sites that do similar things, Google uses the entire web as its source, so the result is exhaustive: exactly what I want. Squared works across any number of subjects. Type in "Australian TV shows" and you get a comprehensive listing with screen shots, running time, and so on. You can also add your own criteria and Google tries to compute it from the available info. In the case of the TV shows, I added "Year" and Google found the year several shows launched. Brilliant!

VIDEO EFFECTS

Blue-screen effects the easy way

A blue-screen (or green-screen) is a way of making things appear as if they're actually happening when they're not.

APC EXPERT

LEIGH D. STARK

Leigh D. Stark has an obsession for all things with the word "photo" or "video" in them and is rarely caught without a hat. He can often be seen teaching photography and has an almost unhealthy obsession with technology.

So, you just bought yourself a new video camera and now you're looking to flex some creative muscle in a way that would make Hollywood proud. The technique of "Chroma Keying" is one of the mainstays of Hollywood film-making, and you can do it too.

For this exercise you'll need a camera, a video-editing program, and a background that is either solid-blue or bright-green. For a lot of the work I've done, I head down to the newsagent and grab some fluoro-card stock that kids normally buy for craft projects.

I've had more luck with the blue-screens used from this than the green, but depending on what you're doing, you might have better luck.

If you need a large screen, find a very bright bed sheet or get some paint (and permission) and paint a wall in your home with a few shades of blue.

Make sure the room that you're filming in is well-lit, because you'll need as much light as you can get. If you've got some lamps in your home or even a studio light, use one of those to help you brighten up the place. Your camera will appreciate you for it.

From there, you'll film your scene with the blue- or green-screen behind you. Remember not to wear anything in the same colour as the screen, otherwise it'll disappear when you key the footage.

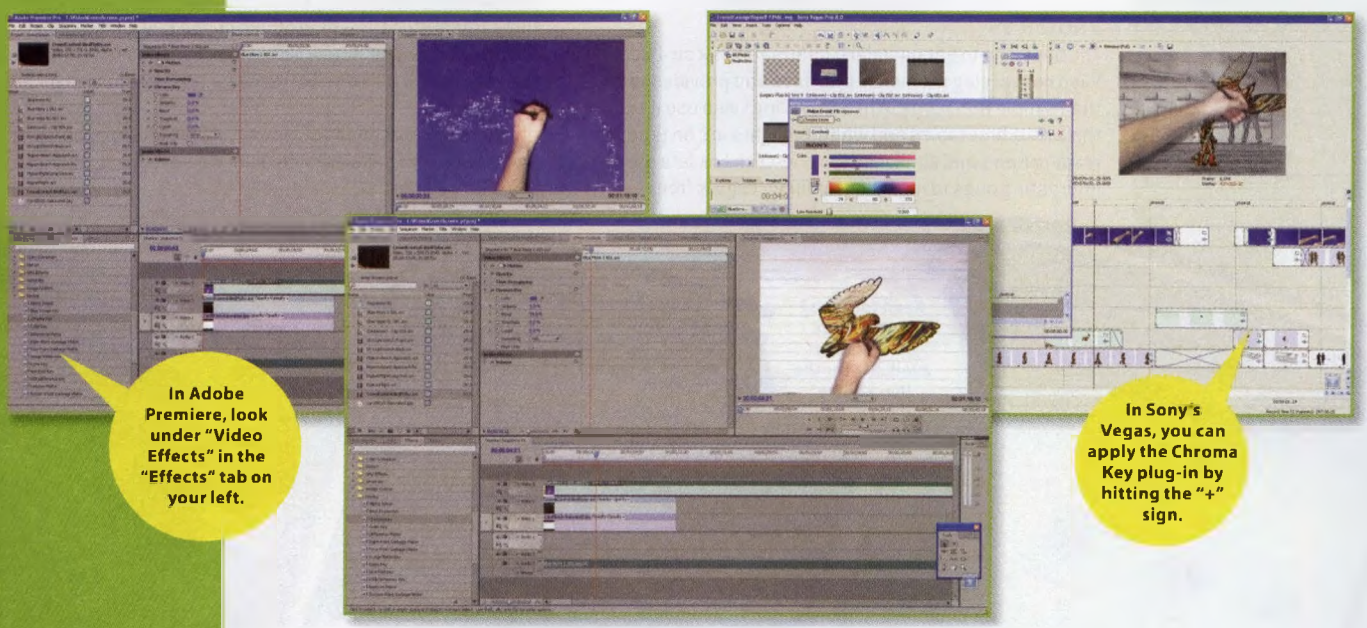
Once you're done, load your footage into an editing application. If you're using Sony's Vegas, you can apply the plug-in by hitting the "+" sign on your footage clip and selecting "Chroma Keyer". Simply use the colour dropper on the colour you made your screen with and then play with the threshold to pull it off. Add some blur if you think it'll make the image look better.

Adobe Premiere users will find it a little different with a few of their choices. Load your footage into the timeline and look under "Video Effects" in the "Effects" tab on the left. From there, you can drag and drop options like "Chroma Key" or "Blue Screen Key" onto the clip and then modify the settings under "Effect Controls" in the exact same way as we did in Vegas. Play around until you get the effect you're after.

For Premiere Elements users, your settings are under "Edit" and "Effects". If you can't find them, search for "key". It's the same drag-and-drop principle here as with the other programs.

You're also going to need some footage to work under what you've created, so shoot some background scenes or find some already filmed scenes you like, otherwise you'll be doing this all on a flat black background.

Once you're done, edit, export, and be a Hollywood star! (Or at least a YouTube one.)


In Adobe Premiere, look under "Video Effects" in the "Effects" tab on your left.
In Sony's Vegas, you can apply the Chroma Key plug-in by hitting the "+" sign.

BLACKBERRY

The top BlackBerry apps

Forget the endless lists on the web. A BlackBerry addict lists the best apps: period.

APC EXPERT

ANTONIO MORRIS

Antonio is a geek whose primary aim in life is to migrate all of his computer and web usage to his BlackBerry (since the company pays for it!).

While the BlackBerry's main selling point is still its unparalleled handling of corporate (and personal) email, it's also benefiting from a growing number of software apps. The range of apps is not as extensive as the iPhone's, and the BlackBerry App Store is not yet available in Australia, but the following are my favourites and can be downloaded individually. The easiest way to get these apps is OTA (over the air). Google them on your device and download directly.

EVERNOTE FOR BLACKBERRY

Evernote has finally ported its 'world's best' notetaker application to the BlackBerry. Clip or write information to your Berry and it synchs with the Evernote web client, which then synchs with your Evernote desktop client on your PC or Mac. It means information gathered on your travels is always at your fingertips. The free version allows you 30MB of information uploads per month. The premium version costs US$45 a year but gives you 500MB of uploads a month.

GWABBIT

Although it's an Outlook add-on, Gwabbit is the BlackBerry utility-of-the-moment. It grabs contact information from new emails in your Outlook inbox, adds it to your Outlook address book and updates your BlackBerry contacts database at the same time. Costs US$9.99.

VIIGO RSS

The best way to get your daily information fix on a Berry. Viigo has an elegant mobile interface and provides far more than simple RSS feeds. When travelling I also use it to check the airline timetables and whether flights are on time. When reading news and similar info, a one-click link lets me email interesting ones to my inbox for filing. Viigo is free.

GOOGLE MAPS AND TELMAP NAVIGATOR

Telmap Navigator is an awesome GPS navigator that brings TomTom or Garmin-style functionality, such as 3D navigation and traffic reports to your BlackBerry. Only problem is it hasn't yet launched in Australia, although Telmap says that it's coming. If you're going to Europe or the US, it's an absolute essential, even if a subscription costs about $15 per month. In the meantime, the free Google Maps for BlackBerry does a reasonable job of at least plotting your location to a few hundred metres and giving you directions.

WORLDMATE

Incredible travel app — synchs in to airline schedules, generates an itinerary from the version emailed to you by your travel agent or company travel department, and even suggests alternate flights if you are going to be late. And that's just the start. It provides world clocks, currency converters, weather, bookings, even lets you know when friends are in the same town. I use it daily even when I am not travelling. Partly free; subscription to the Gold version required for premium info such as flight schedules.

GUITAR HERO III MOBILE

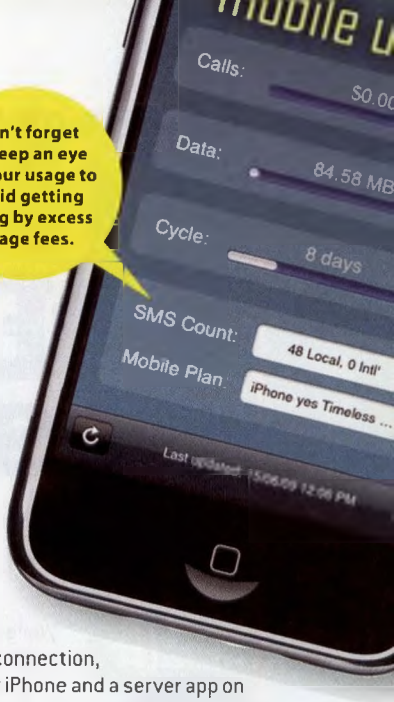
When the commute to the office is boring, you can try to master classic guitar tracks while riding the bus. To play the chords in this BlackBerry version of Guitar Hero, you click three fret buttons (instead of five on the real game) and hold them down for notes. Go to **www.bplay.com** where you can purchase it as a one-off game for US$9.99 or sign up to a subscription.

There are also heaps of industrial BlackBerry apps, from SAP Mobile CRM to Salesforce.com. We'll be looking at these in a later column.

IPHONE

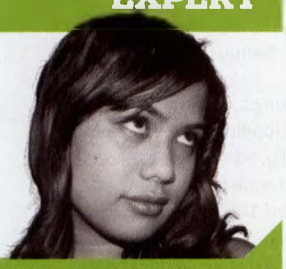
Use up all your data

Make the most of your iPhone's data cap with these bandwidth-sucking apps.



Don't forget to keep an eye on your usage to avoid getting stung by excess usage fees.

APC EXPERT



JENNETH ORANTIA

An expert on all things mobile, Jenneth Orantia has been writing reviews and tutorials on smartphones for the last seven years. Her current phone of choice is the iPhone 3G, but she's also well-versed in Windows Mobile, Symbian, Palm and BlackBerry.

Power users will always find ways to use up their monthly bandwidth, but if the only times you use data on your iPhone is the occasional email and web site, you're probably not even coming close to using up all your data — which you may as well do, since you're paying for it!

Here are a few fun ways to help you chew up all those extra megabytes.

INTERNET RADIO

The iPhone may not have a built-in FM radio, but it's got access to tonnes of radio stations around the world using internet radio programs. SHOUTcast Radio is the best free app, with access to over 25,000 radio stations in its database and support for different bitstreams.

SHOUTcast Radio doesn't support custom radio stations, though — for that, you'll have to plump for one of the paid internet radio apps like Tuner Internet Radio ($7.99), which supports AAC+, MP3, PLS and M3U streaming. For WMA streams — used by the majority of Australian radio stations — you'll have to go for the more expensive Pocket Tunes Radio ($12.99).

STREAM MUSIC FROM YOUR OWN PC

If you've got a case of 32GB iPhone 3G S envy, you don't have to buy the new model if you're only going to fill that extra storage with more music. For $7.99, Simplify Media 2 lets you access your computer's entire music library over a 3G or Wi-Fi connection, using a client app on your iPhone and a server app on your PC, Mac or Linux box. If you've got other friends using Simplify Media, you can connect your iPhone to up to 30 other computers and share music between them.

REMOTE ACCESS

It's not cheap, but if you want to access your full Windows or Mac desktop from your iPhone, there are a handful of remote access programs that'll let you do it. A couple of them, like Remote Desktop Lite and Mocha VNC Lite, are free, but these typically require you to manually open up ports on your router and configure a static IP address for your computer.

If you'd prefer a fast and easy way to do it — and don't mind paying the extra premium — LogMeIn Ignition ($36.99) makes the process extremely straightforward. It supports multiple computers and uses 256-bit SSL encryption.

TETHER IT TO YOUR LAPTOP

The fastest way to chew up all the data in your plan is by using your iPhone as a wireless broadband modem for your laptop. The latest iPhone OS 3.0 update, which will be available for free download by the time you read this, introduced a data tethering feature — something that was previously only possible by jailbreaking your iPhone and using an app like PdaNet.

Data tethering is a feature that needs to be specifically enabled by the carriers for it to work, and while it wasn't active on the iPhone OS 3.0 GM Seed beta we were testing, a slide displayed at last month's WWDC keynote revealed that Optus, Vodafone and Telstra would be offering this feature.

KEEP AN EYE ON YOUR DATA

Once you've started using a fair chunk of your monthly data, the next step is to keep an eye on your usage to avoid getting stung by excess usage fees. Vodafone users can download the free (ad-supported) Usage Checker to keep track of your cap and mobile data usage. The same apps are available for Optus and Virgin Mobile users with the Virgin Mobile Usage and Optus Mobile Usage apps respectively, but you'll have to pay $2.49 for each app. For users on other networks, the $3.99 iiQuota app works just as well.

Want radio on your iPhone? It might not come for free, but you can still have it.

OPEN SOURCE CHALLENGE

Essentials for system rescue

Sometimes, hardware just goes pear-shaped, and there's nothing you can to do. So, how do you get things back on track?

APC EXPERT

ASHTON MILLS

Ashton has been using Linux since Slackware came on floppies, and before that he was one of the three people in the world who used OS/2 (and loved it). Always ready to make the most of his PCs, he is constantly playing with Linux distributions and compiling the latest kernel. This is his idea of fun, and why we get him to write for *you*.

While we all hope we don't need to use system restore tools, inevitably — especially when playing around with multi-boot scenarios — we find a time to use them. Sometimes, it's not so much user error (or a new operating system deciding it wants to dominate your system — even Windows will happily trash other Windows partitions) but hardware failures: even a simple power-out can bring unexpected woe to your system, causing it to become unbootable or worse. And Linux, despite all its advantages, isn't immune to hardware failure.

So where do you turn when things go awry? Assuming your drives are still mountable, there are a number of handy tools you can use. And, to make it easy, there are a number of bootable Linux images that combine these programs into one single package. Here are three of the best — if you don't currently have one of these burned to CD or bootable on a USB key, now is a good time to choose one and put it aside for that rainy, albeit troublesome, day.

SYSTEM RESCUE CD

www.sysresccd.org

1 The first of these is, appropriately, System Rescue CD. It can be used in two forms: from the command line or via a basic lightweight XFCE GUI.

When you boot the CD you're presented with a prompt to run the myriad of command utilities on the CD via bootable images or, if you press enter, to boot the GUI.

Some of the programs included at the prompt (after pressing the F2 menu) include memtest, a DOS emulator, hardware diagnostic tool, partition manager, and the ability to boot local disks or from a network. You'll also find tools to wipe a disk and directly edit or reset Windows passwords from NTFS partitions — handy if you've forgotten Windows passwords.

Booting into the GUI (which requires running 'wizard' once the live Linux CD has finished loading) gives access to a range of utilities that are, naturally, somewhat easier to use than their command-line counterparts. These include the Gnome partitioning tool, GParted, the appropriately named partition imaging tool, Partimage, the disk recovery tool, TestDisk, and a range of standard Linux applications including a terminal, text editors, file managers, CD/DVD burner, and a recent 3.0.10 release of Firefox.

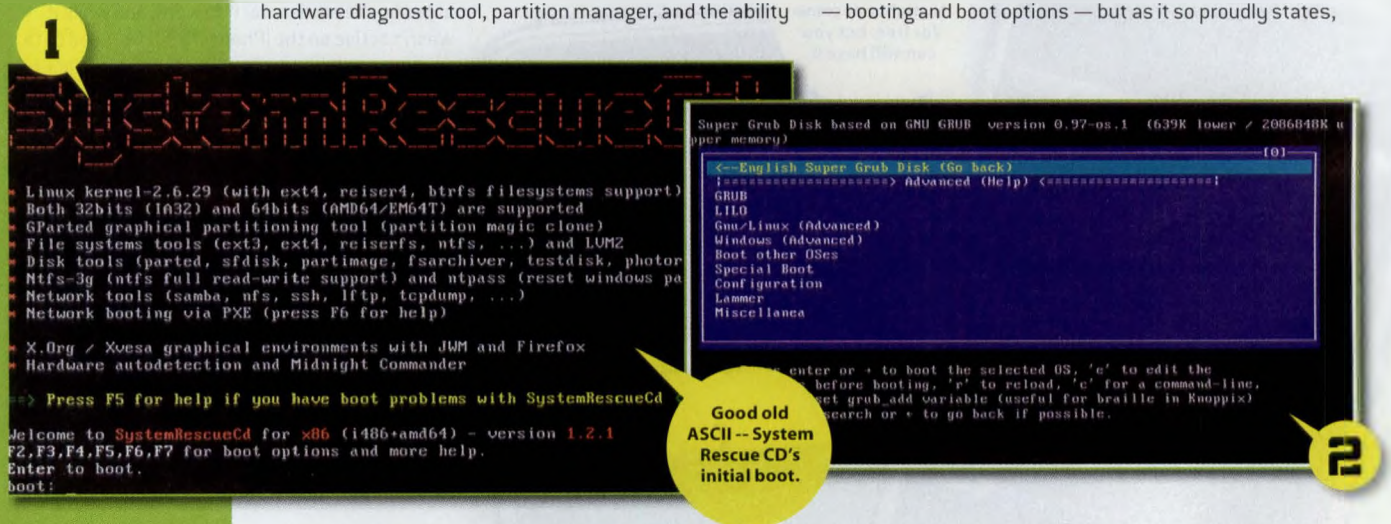
The most prominent use for booting the GUI will be to use GParted, which makes setting up partitions for a machine a breeze. Adding/removing/moving/resizing or formatting partitions for Linux and Windows is easily done through the GParted interface, which along with at least a 2.6.28-based kernel supports the new ext4 filesystem.

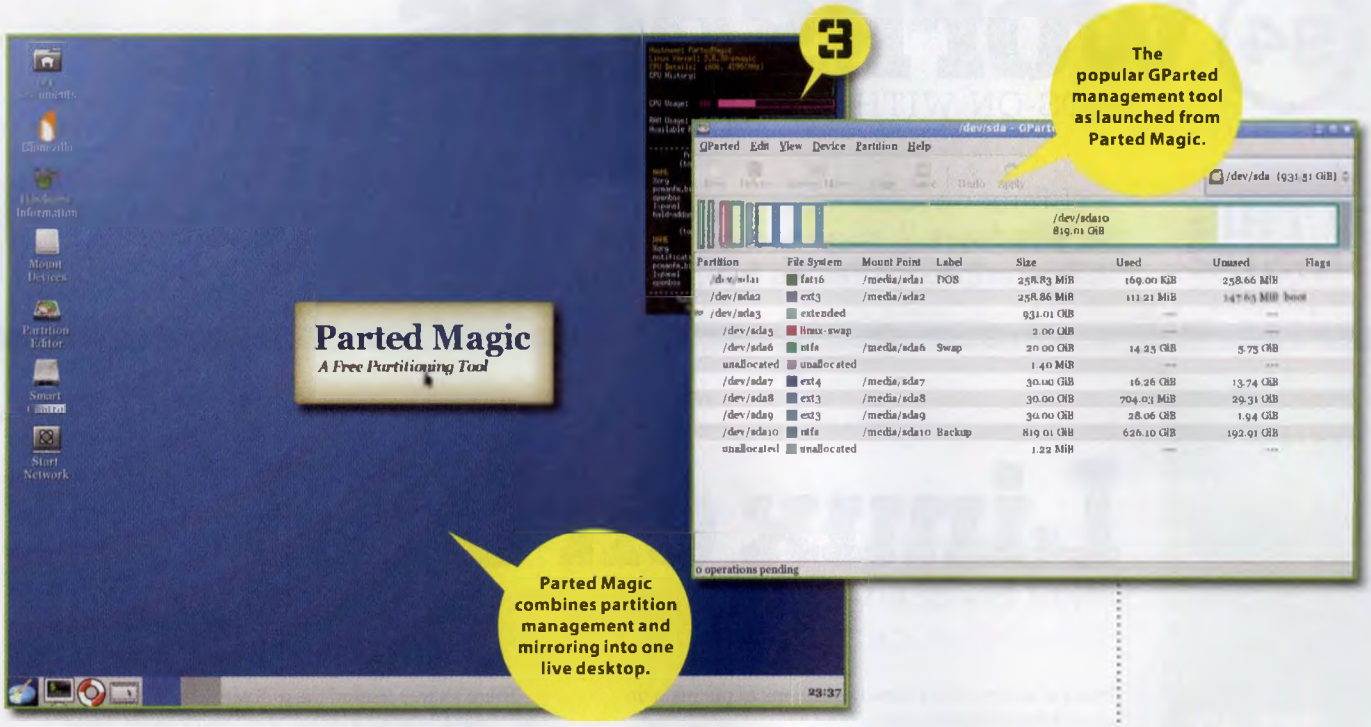
As it happens, System Resuce CD uses a relatively recent 2.6.29 kernel based around Gentoo, and for ease of portability can be installed directly to a USB key by following the instructions on the site.

SUPER GRUB DISK

www.supergrubdisk.org

2 If you've installed Linux, you're familiar with GRUB (or, at the least, predecessor, 'lilo'). Super Grub Disk doesn't feature a fancy UI and has a relatively narrow focus — booting and boot options — but as it so proudly states,


1
Linux kernel-2.6.29 (with ext4, reiser4, btrfs filesystems support)
Both 32bits (IA32) and 64bits (AMD64/EM64T) are supported
GParted graphical partitioning tool (partition magic clone)
File systems tools (ext3, ext4, reiserfs, ntfs, ...) and LVM2
Disk tools (parted, sfdisk, partimage, fsarchiver, testdisk, photor
Ntfs-3g (ntfs full read-write support) and ntpass (reset windows pa
Network tools (samba, nfs, ssh, lftp, tcpdump, ...)
Network booting via PXE (press F6 for help)
X.Org / Xvesa graphical environments with JWM and Firefox
Hardware autodetection and Midnight Commander
Press F5 for help if you have boot problems with SystemRescueCd
Welcome to SystemRescueCd for x86 (i486+amd64) - version 1.2.1
F2,F3,F4,F5,F6,F7 for boot options and more help.
Enter to boot.
boot:
Good old ASCII -- System Rescue CD's initial boot.
Super Grub Disk based on GNU GRUB version 0.97-os.1 (639K lower / 2086848K u
pper memory)
<--English Super Grub Disk (Go back)
Advanced (Help)
GRUB
LILO
Gnu/Linux (Advanced)
Windows (Advanced)
Boot other OSes
Special Boot
Configuration
Lammer
Miscellanea
2


3
The popular GParted management tool as launched from Parted Magic.
Parted Magic
A Free Partitioning Tool
Parted Magic combines partition management and mirroring into one live desktop.
GParted Edit View Device Partition Help
/dev/sda (931.51 GiB)
/dev/sda10
819.01 GiB
Partition File System Mount Point Label Size Used Unused Flags
/dev/sda1 fat16 /media/sda1 DOS 258.83 MiB 169.00 KiB 258.66 MiB
/dev/sda2 ext3 /media/sda2 258.86 MiB 111.21 MiB 147.65 MiB boot
/dev/sda3 extended 931.01 GiB
/dev/sda5 linux-swap 2.00 GiB
/dev/sda6 ntfs /media/sda6 Swap 20.00 GiB 14.25 GiB 5.75 GiB
unallocated unallocated 1.40 MiB
/dev/sda7 ext4 /media/sda7 30.00 GiB 16.26 GiB 13.74 GiB
/dev/sda8 ext3 /media/sda8 30.00 GiB 704.03 MiB 29.31 GiB
/dev/sda9 ext3 /media/sda9 30.00 GiB 28.06 GiB 1.94 GiB
/dev/sda10 ntfs /media/sda10 Backup 819.01 GiB 626.10 GiB 192.91 GiB
unallocated unallocated 1.22 MiB
0 operations pending
23:37

GRUB is a highly flexible tool, and Super Grub Disk will help you discover some of what it can do.

Cleverly, all the options in Super Grub Disk run through GRUB itself — menus are GRUB entries, and there are plenty to choose from.

Just some of what Super Grub Disk will allow you to do includes:

- Restore GRUB to any disk or partition.
- Restore Windows MBR or bootsector.
- Uninstall GRUB.
- Activate, hide and unhide partitions.
- Log in as root user for a Linux installation.
- Boot Linux, Windows, and even Open Solaris.

Super Grub Disk will mostly come in handy for those times when you've set up a dual-boot Windows/Linux system (and updating one or the other overwrites the MBR and boot sector and prevents the other operating system from loading). Usually, installing a new or updated Linux distribution is fine, as long as you migrate your GRUB configuration if necessary (this is when having a separate /boot partition is handy, as GRUB stores its configuration there — no matter how many Linux distributions you install, they can all share the same /boot and GRUB config). However, updating Windows will usually lead to Windows trouncing the boot sectors, as Windows is wont to do. Super Grub Disk makes it easy to restore your current GRUB configuration by simply reinstalling GRUB. While this can be done if you're familiar with GRUB from your Linux boot, it's somewhat hard to do so if you can no longer boot Linux, thanks to Windows overwriting the MBR. Super Grub Disk makes restoring GRUB easy, and all through a menu interface.

PARTED MAGIC

http://partedmagic.com

3 Parted Magic is the most graphically driven of the tools covered here. It boots to a full live desktop environment and, under the hood, sports the cutting-edge and only recently released 2.6.30 kernel (by comparison Ubuntu 9.04 has a 2.6.28-based kernel). It's not there for the sake of running the bleeding edge but for the recent driver and ext4 updates that made it into 2.6.29 and 2.6.30.

What is a little bit more for show, however, is the inclusion of the Conky desktop status information listing hardware details as well as processor and memory load. At least you know how busy the machine is if you're doing extensive work on partitions!

Parted Magic aims to be a comprehensive portable tool for managing system partitions, primarily through GParted, which it does admirably, but in the most recent release — Parted Magic 4.2 — has since expanded this to include a popular mirroring tool called Clonezilla.

This is a great idea, as Clonezilla is a Linux equivalent of the very handy Norton Ghost, only, being Linux, it's free. And, since Parted Magic boots from a CD or USB separate from the system, is a great position to back up or restore mirrored partitions.

As a temporary desktop to administer your system, Parted Magic is quite capable. Setting up networking is done through a simple network configuration dialog, and the very latest Firefox 3.5RC2 is included for browsing. Chat, FTP, and the VNC viewer are also bundled.

In addition to GParted and Clonezilla, a range of ancillary programs are provided as well, including TrueCrypt for encryption, an ISO reader/editor, disk wiper, GSmartControl for SMART status management on hard drives, and an excellent graphical version of rsync (*the* universal file synchronisation tool) called Grsync. Overall, it's a combined system setup, diagnosis, backup and restore tool in one.

As with System Rescue CD, Parted Magic details how to create a USB bootable version, making it easy to carry this bootable bag of tricks in your pocket. If you try only one of these tools covered here, give Parted Magic a go.

DO THIS... BOOTABLE RESCUE DISK

Bootable tools like these have other uses apart from recovering or setting up a system. As a separate bootable OS, you can perform tasks on your root partition you may not normally be able to do easily (since root is always mounted when you boot).

The simplest of these is a full disk check with fsck — if you ever get a disk error that prevents you from booting, before you go all out and try and recover your data you may simply need to give the disk check tools a chance to work. Using fsck is as simple as 'fsck [partition]', but if you'd like to see what it will do first before committing any changes, run it with the '-n' flag.

Another useful function, of course, is gaining full access to an install — mounting partitions while root from the boot CD you're using will give you root access to any partitions you mount, which may otherwise be inaccessible if you don't usually have access to the root account of the OS when it's booted.

94 workshops
HANDS-ON WITH HARDWARE & SOFTWARE

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USB BOOTING

Linux on USB

Nick Race produces the definitive guide on getting a Linux installation running on your PC, without touching your HDD.

WHAT YOU'LL NEED

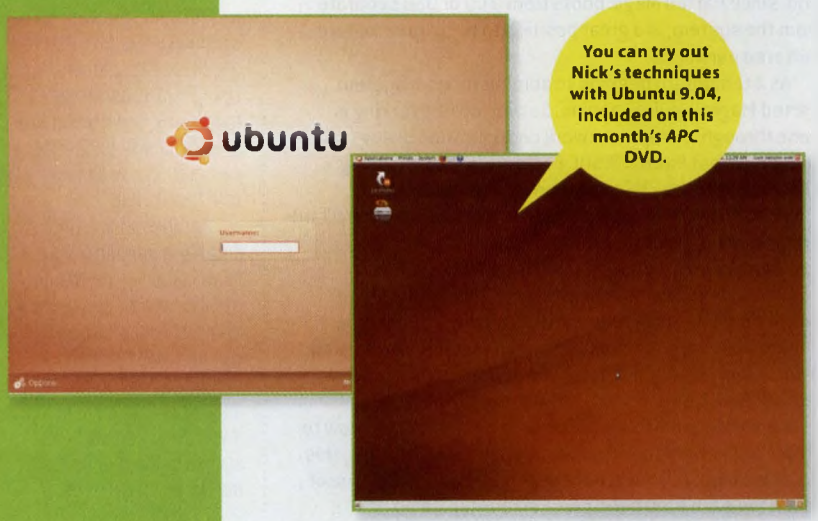
A USB KEY
For this workshop you'll need a key with at least 2GB of storage.

A PC RUNNING XP, VISTA OR WINDOWS 7
Anything older than that, forget about it!

A LINUX ISO
You can find Ubuntu 9.04 on the *APC* cover disc this month, or others at the distribution's web site.

Those of us who don't already run Linux as our main or secondary OS have probably tried it via a Live CD, but, unfortunately, the easiest way to go about trying the OS rarely leaves a favourable impression. A Live CD is an amazing feature, really. It lets you test drive an entire operating system, with a complete feature set, by running it off a DVD. You can just pop it into your optical drive, boot your PC and you're looking at a new desktop. The problem is that it really doesn't do enough to convince anyone. There are two problems with the Live CD format. Firstly, it's too slow. Running off an optical disc is far from the fastest computing experience you could have and can give people a false impression on just how snappy a Linux environment can be.

Secondly, unless you want to start impinging on your hard disk drives, you've got no persistent data store. If you create a document, you've got to put it in the cloud, store it on a USB key or find a part of your hard disk to sacrifice; and that really defeats the purpose. Live CDs are too ephemeral and too slow.



There's a way around the problems, however. It gives you exactly what's lacking in the Live CD experience. Good performance, fast access times and a place to store your data, all in one. A Live USB solution.

Though it can be done manually, the process is quite painful (amusingly, it's easiest done on a Linux installation...) Thankfully, an organisation called Pen Drive Linux (**www.pendrivelinux.com**) makes it a simple process.

THE KEY DIFFERENCE

The big difference between a Live CD and a USB installation is the inclusion of a file, named casper-rw, which acts as a permanent file store. This means you can use the Linux installation as normal. Create and edit documents, keep bookmarks in your browser: nearly everything you can do with a full Linux installation.

The default size of the casper-rw file is 1GB, though larger casper-rw files are available to download if you have a USB key with a bigger capacity. The download of the casper-rw file is quite small, as the files are empty, but they unzip to their full size, so ensure you have enough free hard disk space before you proceed.

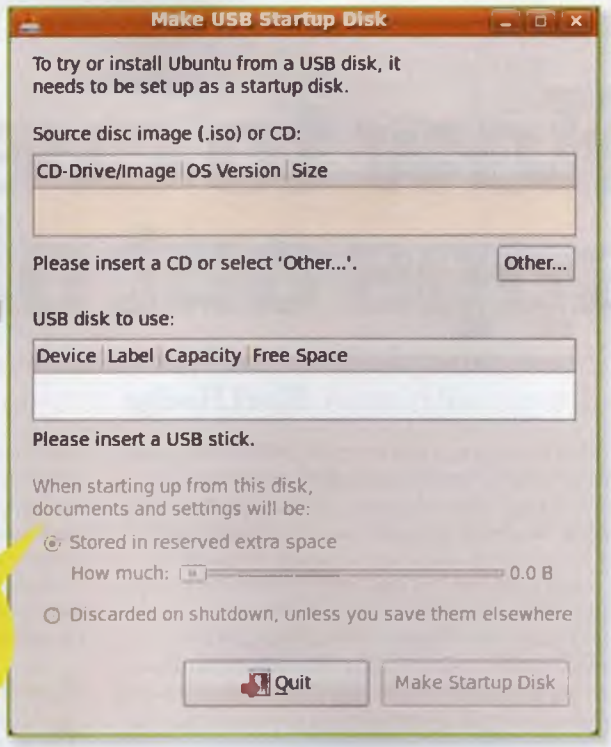
PREPARATION

For running Linux on a USB key, there are a few things that we need to gather together. First is a Linux installation ISO, found on *APC* cover discs or downloaded from the distribution's web site. Then, tools from Pen Drive Linux to decompress different Linux distributions and versions, so make sure the one you want to use is supported.

In our example we're using Ubuntu 9.04 (Jaunty Jackalope) and Pen Drive Linux's USB Ubuntu 9.04 Persistent Install (Windows) tools, along with the default 1GB casper-rw store, included in the Persistent Install download.

The USB Ubuntu 9.04 Persistent Install (Windows) tool is available at **http://tinyurl.com/ddnycd**. The file name is u9.04p.exe. Ubuntu 9.04 is included on this month's *APC* cover disc. The file name is ubuntu-9.04-desktop-i386.iso. You obviously need a USB key with a minimum of 2GB storage. You will need to format the key, so make sure that

With USB booting, you can have the pros of Live CD booting without the cons.


Make USB Startup Disk
To try or install Ubuntu from a USB disk, it needs to be set up as a startup disk.
Source disc image (.iso) or CD:
CD-Drive/Image
OS Version
Size
Please insert a CD or select 'Other...'.
Other...
USB disk to use:
Device
Label
Capacity
Free Space
Please insert a USB stick.
When starting up from this disk, documents and settings will be:
Stored in reserved extra space
How much:
0.0 B
Discarded on shutdown, unless you save them elsewhere
Quit
Make Startup Disk

Missed a tutorial?

Visit www.magshop.com.au for back issues of APC

you have taken any important documents off it first. Last but not least, you require a PC running Windows XP, Vista or Windows 7.

GETTING STARTED

The process for extracting Ubuntu 9.04 on to the USB is automated by the Pen Drive Linux install tool. But there are a few things that you need to do first. Begin by formatting your USB key as FAT32. Do this by right-clicking on the USB key's icon in 'My Computer' and selecting Format. In the dialog box, make sure that FAT32 is selected in the File System drop-down box and that Quick Format is selected. Make sure 'Create an MSDOS startup disk' is not selected, and click on the Begin button. It should only take a moment to prepare the USB key.

Once the USB key is formatted, make a careful note of its drive letter in Windows Explorer. Getting this wrong later on might cause you to lose data. Next, extract the u9.04p.exe file by double-clicking on the downloaded file in Windows Explorer. It will automatically create a folder named U904p on your hard disk drive at a location you choose. We used C:\ to make it easier to find later on.

Copy the Ubuntu Linux 9.04 ubuntu-9.04-desktop-i386.iso to the U904p directory. The installer will later use the contents of the ISO file to create the Linux installation on the USB key. Once the ubuntu-9.04-desktop-i386.iso file is in the U904p directory, double-check the drive letter of the USB key before proceeding. In our case, it's Drive F, but it may be different for you.

THE INSTALL

Once the parts are in place, double-click the batch file in the U904p directory named U904.bat. This will extract the appropriate files, then copy them to the USB key and make it bootable. It will first ask you for the drive letter of your USB key. Type it in at the command prompt to begin the process. The process can take up to 15 minutes, so sit back and relax while it's happening.

Once the files are extracted and copied, another batch file is called named makeboot.bat. It will once again ask you for the drive letter of the USB key, so enter it again at the prompt. It's a quick process this time.

A note for Vista and Windows 7 users. At this point, you need to run the makeboot.bat file again, but *not from the U904p directory*. Navigate to the USB key through Windows Explorer and find makeboot.bat in the root of the key's filesystem. Right-click on makeboot.bat on the USB key and select 'Run As Administrator'. Confirm that the drive letter displayed is the drive letter of your USB key and press Enter to continue and complete the process.

FIRING IT UP

Next, reboot and go into the BIOS of the PC to confirm that booting from USB is enabled or selected. This changes from PC-to-PC, so check the documentation that came with your PC or motherboard for detailed instructions. In some cases it may involve changing the boot drive order, or simply selecting the USB option from a bootable device list.

With the USB key plugged in, reboot the computer and select the USB drive to boot. An Ubuntu boot screen will appear, giving you the option to Run Ubuntu Persistently, Install Ubuntu or run various diagnostics. Choose Run Ubuntu Persistently. Choosing the installation option will begin the process of installing Linux on your hard disk drive, which we don't want.

Once Run Ubuntu Persistently is selected, the PC will load the the installation off the USB key, and you will be presented with your new desktop. Congratulations, you now have a functional Linux USB installation, which can be used on any PC or notebook that boots from USB. APC

MORE ABOUT THE CAVEAT

Our experimentation with this method yields excellent results, but there is something to be aware of. You can update your Linux installation as per normal (using the package updater), but avoid installing 3D graphics drivers, we have had issues with it during our testing. This does mean that 3D acceleration is off the table, but we're not building a gaming machine here.

PROGRAMMING

How to create apps out of AIR

Adobe's new platform delivers web-enabled applications to desktops with ease. **Karl Hodge** shows you how.

WHAT YOU'LL NEED

ADOBE AIR RUNTIME

You'll need this to run any AIR application. Grab it from *http://get.adobe.com/air*.

ADOBE AIR SDK

To create your own apps, pick up the SDK from *www.adobe.com/products/air/tools/sdk*.

Given that the net app market is stuffed with offerings from the likes of Apple, Microsoft and Google, Adobe's AIR has been more successful than anyone could have reasonably expected. Now factor into your considerations that both Apple and Microsoft's OSs come with built-in support for web-enabled widgets, and it's amazing to think that AIR has been installed on over 150 million machines. Why would anyone choose Adobe's software over Microsoft's or Apple's? We think the open nature of the technology has something to do with it. You can develop for Adobe AIR using nothing more complicated than HTML and JavaScript, and the container format is very easy to use. Crucially, AIR UI components can also be built in Shockwave Flash. Over the following pages, we'll take a look at both the tools and expertise you'll need to assemble a simple Adobe AIR app that can be deployed anywhere.

INSTALL THE RUNTIME

1 There are two prerequisites for developing with Adobe AIR on your desktop: the development tool and Adobe AIR runtime. The latter enables Adobe AIR apps to run locally; grab it from **http://get.adobe.com/air**. Once installed, you'll be able to download and run Adobe AIR apps, which are essentially bundled folders containing a set of standard files and given an .AIR extension. There's no need to compile any code since everything is built-in script, so the runtime does all the heavy lifting. Although it's similar to other widget and RIA runtimes, such as Google Gears and the OS X dashboard (all of which offer support for HTML, CSS and JavaScript), AIR is unique in that it provides direct hooks into Flash via ActionScript. ActionScript is the ECMAScript-compliant language used in the development of Flash apps. This gives AIR an advantage in both UI development and data handling, because Flash has built-in libraries designed for communicating with remote data.

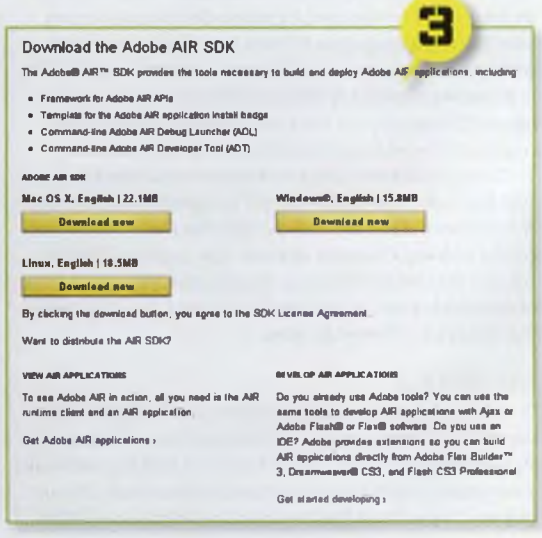
WEBKIT INSIDE

2 Though touted as a system for building browserless web apps, AIR's primary engine is WebKit, the same page-rendering code at the heart of Apple's Safari. In a sense, then, the AIR runtime is a browser without chrome or menus; you have to build them yourself. Apps like Tweetdeck prove there are several further features that take Adobe's development offering beyond that narrow definition. AIR has SQLite built-in alongside the ability to store and retrieve persistent data, manage native windows and menus, and pull data from remote sources. In short, it's equivalent to a mini OS. Using Flash, HTML and JavaScript for development means that the apps are cross-platform too, running on any OS that AIR can without the need to port.

INSTALL THE SDK

3 If you're used to writing HTML, CSS and JavaScript manually, the Adobe AIR SDK is the best place to get

1
Download the latest version of Adobe AIR
Adobe AIR enables you to have your favorite web applications with you all the time.
Adobe AIR 1.5.1 Installer
Windows, English | 15.0 MB
Different operating system?
Learn more | System requirements | Distribute Adobe AIR
Download now
By clicking the Download Now button, you agree to the Software License Agreement
2


3
Download the Adobe AIR SDK
The Adobe® AIR™ SDK provides the tools necessary to build and deploy Adobe AIR applications, including
Framework for Adobe AIR APIs
Template for the Adobe AIR application install badge
Command-line Adobe AIR Debug Launcher (ADL)
Command-line Adobe AIR Developer Tool (ADT)
ADOBE AIR SDK
Mac OS X, English | 22.1MB
Download now
Windows®, English | 15.8MB
Download now
Linux, English | 18.5MB
Download now
By clicking the download button, you agree to the SDK License Agreement.
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VIEW AIR APPLICATIONS
To see Adobe AIR in action, all you need is the AIR runtime client and an AIR application.
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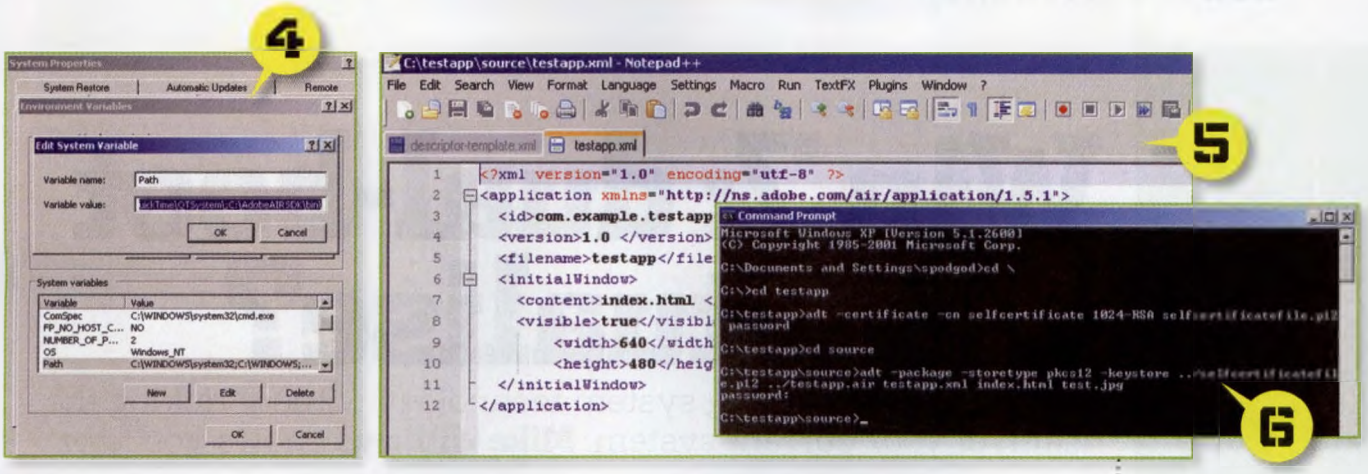
DEVELOP AIR APPLICATIONS
Do you already use Adobe tools? You can use the same tools to develop AIR applications with Ajax or Adobe Flash® or Flex® software. Do you use an IDE? Adobe provides extensions so you can build AIR applications directly from Adobe Flex Builder™ 3, Dreamweaver® CS3, and Flash CS3 Professional.
Get started developing ›



started with AIR. However, it's good practice to install it if you choose to use a dedicated IDE instead. Download the SDK from **www.adobe.com/products/air/tools/sdk**, but it requires some setting up. We suggest you extract the SDK to the root folder of your drive on Windows, to make it easier to supply the path to any IDEs you want to use later.

SPECIFY PATHS

4 You should also add the SDK path to your PC so that you can launch the bundled tools from the command line. Click on 'My Computer' and choose 'Properties'. Select the 'Advanced' tab and click the 'Environment Variables' button. Highlight the Path entry and click 'Edit'. Next, add the string: ';C:\AdobeAIRSDK\bin\' to the end of the allowed paths in the Variable Value box, and click 'OK' three times to exit the dialog. To test whether this change has been successful, open the Command Prompt and type 'adt'. This should launch the Air Developer Tool application packager.

CREATE A BASIC APP

5 Adobe AIR apps have two required parts. The first is an XML container called the Application Descriptor. The minimum requirement for the Application Descriptor is to define the application and name it, point towards some content and create a window to display it in. The following code does just that:

```
<?xml version="1.0" encoding="utf-8" ?>
<application xmlns="http://ns. adobe.com/air/application/1.5.1">
<id>com.example.testapp</id>
<version>1.0 </version>
<filename>testapp</filename>
<initialWindow>
<content>index.html </content>
<visible>true</visible>
<width>640</width>
<height>480</height> </initialWindow> </application>
```

For further examples, complete with guiding comments, check out the file 'descriptor-template.xml' in the SDK folder 'templates/air'.

ADD SOME CONTENT

The second part of the application is the content. In this case, it's a single HTML file called 'index.html'. The WebKit engine means that you can create and style an application using HTML, JavaScript (or AJAX) and CSS. The scripting and styling can either be internal or a set of external files referred to from within the Application Descriptor code. There are also built-in JavaScript libraries bundled in the AIR SDK that you can use to call menus and other functions. The content could even be a Shockwave Flash (SWF) file. For now, a standard HTML file with some placeholder content will do. Create a local folder called 'Testapp' and then a second folder inside it named 'Source'. Now save your Application Descriptor XML file (giving it the filename 'testapp.xml') inside the Source folder. After that, you should save the file 'index.html' that contains your placeholder content in the same folder too.

TIME TO TEST

To test the app as it stands, open the DOS prompt by going to Run and typing 'CMD'. Alternately, Vista users can summon the command prompt by searching for 'CMD'. Navigate to '/testapp/source' and type the following: 'adl testapp.xml'. The Adobe AIR runtime should start up and display your HTML content in a 640 x 480 window. If it doesn't do this, you'll need to go back and check you've followed the steps correctly.

PACKAGE AND DEPLOY

6 Of course, the app is no good unless you can package it for others to use. AIR apps require certification for full deployment (see **www.tinyurl.com/5bxopn**), but you can self-certify your app for now as part of the testing process. Staying at the command prompt, switch to the directory '/testapp' and use the following syntax to create a self-certificate:

```
adt -certificate -cn selfcertificate 1024-RSA selfcertificatefile.p12 password
```

Once that's done, switch back to the source directory and package the files into a deployable Adobe AIR app:

```
adt -package -storetype pkcs12 -keystore ../selfcertificatefile.p12 ../ testapp.air testapp.xml index.html
```

You'll be prompted to give the certificate password (which, here, is 'password') and the packaged file 'testapp.air' will be written to the main testapp directory, ready to launch with a double-click.

MORE ABOUT... AUTHORING TOOLS

In our tutorial, we built a basic container app with nothing more fancy than Notepad++, a simple programmer's text editor. There are several more advanced integrated development environments (IDEs) to choose from, though. The obvious one is Dreamweaver CS4, Adobe's web-authoring tool. It's had server-side scripting support for the best part of a decade, so it's fitting that the same tools can be used to build client-side interfaces. You can download the AIR Extension for Dreamweaver from here: *www.adobe.com/products/air/tools/ajax/*.

Flex Builder 3 is another Adobe tool, created ostensibly for the development of richer web applications featuring Flash UI components. Adobe calls the open-source platform Flex, and it's not too much of a stretch to say that it's the server-side programmer's version of Flash. Find out more at *www.adobe.com/products/flex*.

While both these tools have the backing of Adobe, we highly recommend the Adobe AIR Plug-in for Aptana Studio (*www.aptana.com*). That's mainly because this fully featured IDE comes at a price we like: free.

VIRTUALISATION

Win 7: dual-boot or virtualise?

Try the latest operating system technology without risking the health of your current system. **Mike Williams** shows you how.

WHAT YOU'LL NEED

WINDOWS 7 DVD
The Beta or Release Candidate will both do just fine.

A WINDOWS XP OR WINDOWS VISTA PC
You'll need at least 2GB of RAM and 40GB of free hard drive space.

Windows 7 is almost here, and the RC has had such glowing reviews that you might be tempted to try it for yourself. You could just install it over your existing Windows installation and hope that everything runs smoothly, but that's a risky business, and we wouldn't recommend it.

A safer option is to install Windows 7 on a separate hard drive partition so that you can choose to boot either to your existing operating system or to Windows 7 when your PC starts. Alternatively, using virtualisation software, you could run Windows 7 inside a window on your current XP or Vista desktop, which would be a very convenient way to try it out. Both approaches have their own quirks and problems, though, so it pays to understand them properly before trying to install Windows 7 on your system. Here's everything that you need to know.

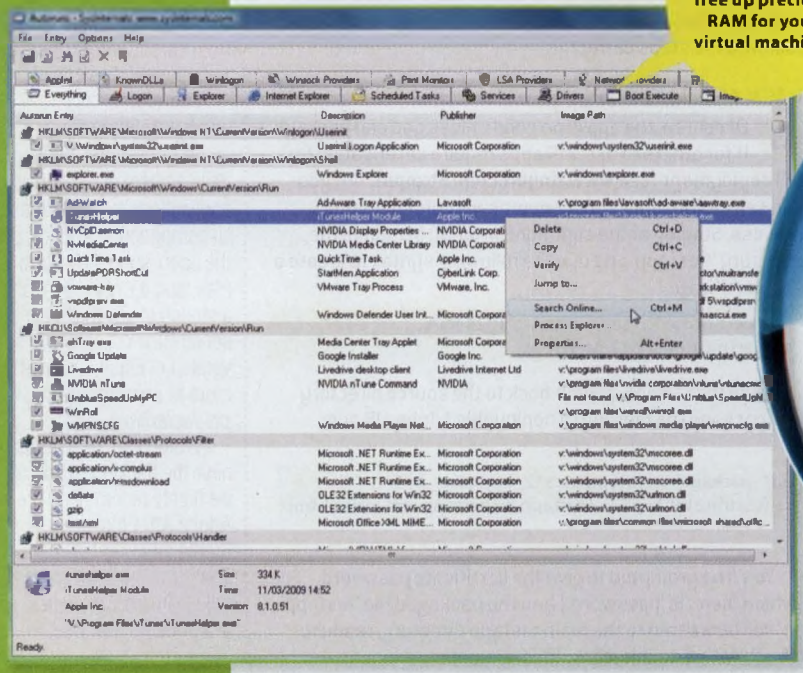
PREPARE YOUR MACHINE

Both the dual-boot and virtual machine approaches to running Windows 7 will require a large chunk of your hard drive space: around 10GB when finished and even more for the installation process. These requirements will only grow as you install and use your applications. If this is an issue for you, take an hour or two to free up hard drive space on your system, running the Windows Disk Cleanup tool, uninstalling unwanted applications and deleting large files that you just don't need any more. It's really not worth trying to cram Windows 7 into a tiny space.

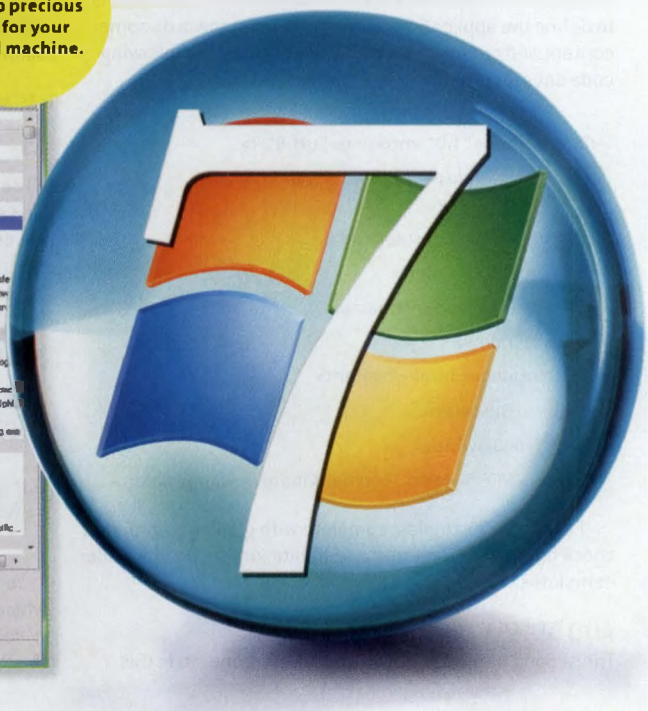
Once that's finished, defragment your hard drive. This consolidates your free space into one or two large blocks, which will help to improve performance, particularly if you're running Windows 7 in a virtual machine. A virtual hard drive that's badly fragmented can really slow you down.

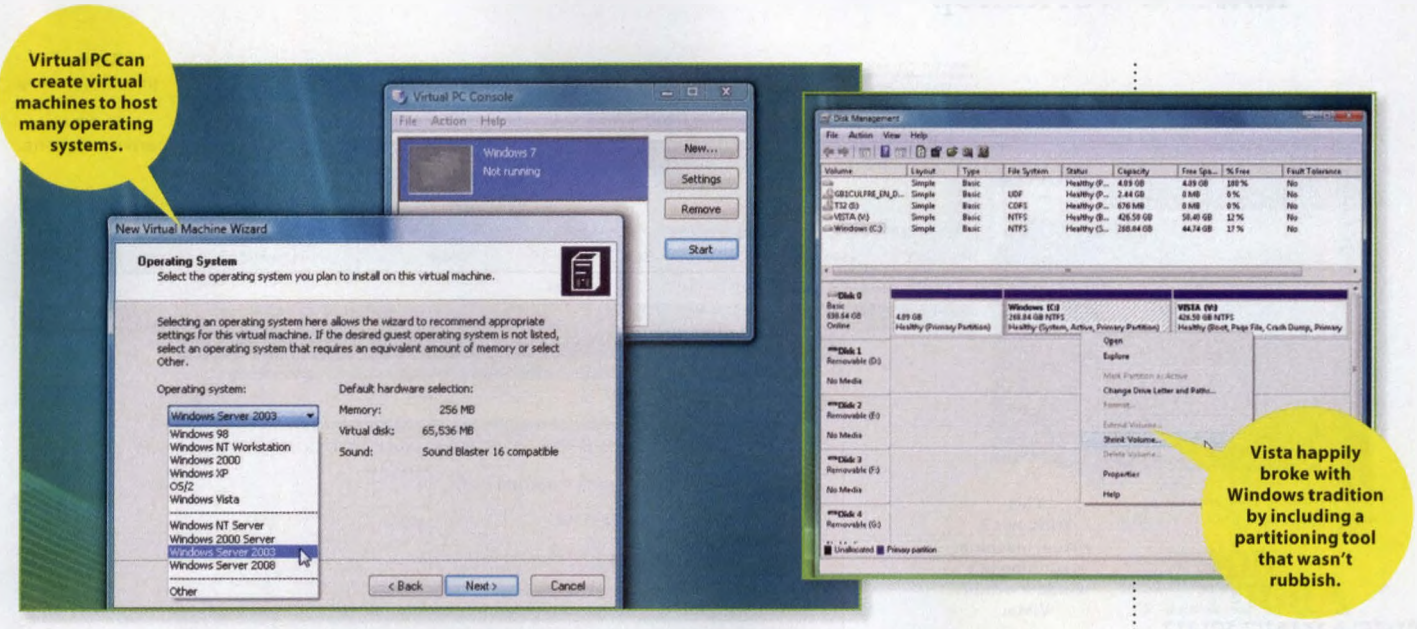
Another complication with the virtual machine approach is the way it chews up system memory. If you want to run Windows 7 in a window on your Vista desktop, you'll need to dedicate at least 1GB of RAM to it if you want to see reasonable performance. Ideally you'd want even more if you're expecting a slick response. So, even if you have 4GB available you could find around half your memory being grabbed by the Windows 7 virtual machine, which could have a serious effect on your current applications.

Now would be a very good time to ensure that your PC is making the best possible use of its RAM. Browse



Using Autoruns could free up precious RAM for your virtual machine.




Virtual PC can create virtual machines to host many operating systems.
Virtual PC Console
File Action Help
Windows 7
Not running
New...
Settings
Remove
Start
New Virtual Machine Wizard
Operating System
Select the operating system you plan to install on this virtual machine.
Selecting an operating system here allows the wizard to recommend appropriate settings for this virtual machine. If the desired guest operating system is not listed, select an operating system that requires an equivalent amount of memory or select Other.
Operating system:
Windows Server 2003
Windows 98
Windows NT Workstation
Windows 2000
Windows XP
OS/2
Windows Vista
Windows NT Server
Windows 2000 Server
Windows Server 2003
Windows Server 2008
Other
Default hardware selection:
Memory: 256 MB
Virtual disk: 65,536 MB
Sound: Sound Blaster 16 compatible
< Back
Next >
Cancel
Disk Management
Vista happily broke with Windows tradition by including a partitioning tool that wasn't rubbish.

through all those icons in your system tray, and if you find any apps you don't need, look for options to prevent them loading at boot time. Next, use a tool such as Autoruns (**www.tinyurl.com/39338j**) to inspect any other programs that are configured to start when Windows loads, and remove those services that are surplus to requirements.

DOWNLOAD VIRTUAL PC

Microsoft Virtual PC is a free tool used to create and manage virtual machines. These are essentially software implementations of PC hardware that run in a window on your current desktop. The virtual machine (or VM) is completely isolated from the host PC, so you can install a new operating system and apps, and even format the virtual hard drive without messing up your existing system.

Sounds great, right? Well, it's certainly handy, but there's one significant problem, especially with regard to Windows 7: graphics. VMs are rarely up to high-performance graphics tasks – as they emulate extremely basic video cards that can't handle the full Aero interface. Windows 7 will work, but you'll only see its 'Basic' interface: no transparency, no Aero peek and no big taskbar preview windows. It's a similar story elsewhere, too: you can run 2D apps like Microsoft Office just fine, but games or other 3D apps almost certainly won't work.

If you can live with that limitation, grab a copy of Virtual PC from the Microsoft web site (**www.tinyurl.com/2jr7a7**). Don't worry too much about the overly fussy system requirements. Microsoft doesn't support running Virtual PC on Windows XP Home, for instance, but in our experience it works just fine. Windows 7 isn't yet listed as a supported guest operating system either, but we've yet to see any problems. So go ahead, download and install the program – it's surprisingly small and will only take a moment.

CREATE A VIRTUAL SYSTEM

It's time to roll up our sleeves and get stuck in. Launch Virtual PC and click 'Next' twice to begin the process of creating a virtual machine. Give it a meaningful name like 'Windows 7' and click 'Next'. Choose 'Windows Vista' as your target operating system (it doesn't matter that this is actually incorrect) and click 'Next'. By default, Virtual PC will allocate 512MB of RAM to this VM, but this amount really isn't enough. We would suggest allocating half your PC's installed RAM, up to a maximum of 1.5GB. To do this, click 'Adjusting the RAM' and choose the figure you'd like before finally clicking 'Next' again.

Your VM's hard drive will actually just be a large file on your PC's hard drive. Choose to create 'a new virtual hard drive' and click 'Next', then enter the drive size. Enter 25,000MB for now: Virtual PC won't claim this all at once, and you can edit the figure later. Click 'Next', then select 'Finish'. Now place the Windows 7 disc into a DVD drive, double-click your new VM in the Virtual PC console and wait for the set-up program to load. If it doesn't start up properly, open the CD menu and tell Virtual PC to use the drive containing your disc, then click 'Action > Reset'. The machine should now reboot and launch Windows setup.

Now work your way through the setup process, choosing the 'Custom (advanced)' install type and pointing Windows 7 at the virtual drive you created earlier. It'll then go to work installing Windows 7 for you, and you can begin trying it out.

PARTITION YOUR DRIVE

Virtual machines are convenient, but as we've seen, they don't support 3D games or other graphics-intensive applications. There are significant limitations with hardware, too: a Virtual PC VM won't recognise USB devices, for instance (apart from a mouse or keyboard). And of course you can't properly assess Windows 7's boot time, file copy speed or any other performance measurement by running it in a VM, because it's an artificial environment that will always run significantly slower than a full PC.

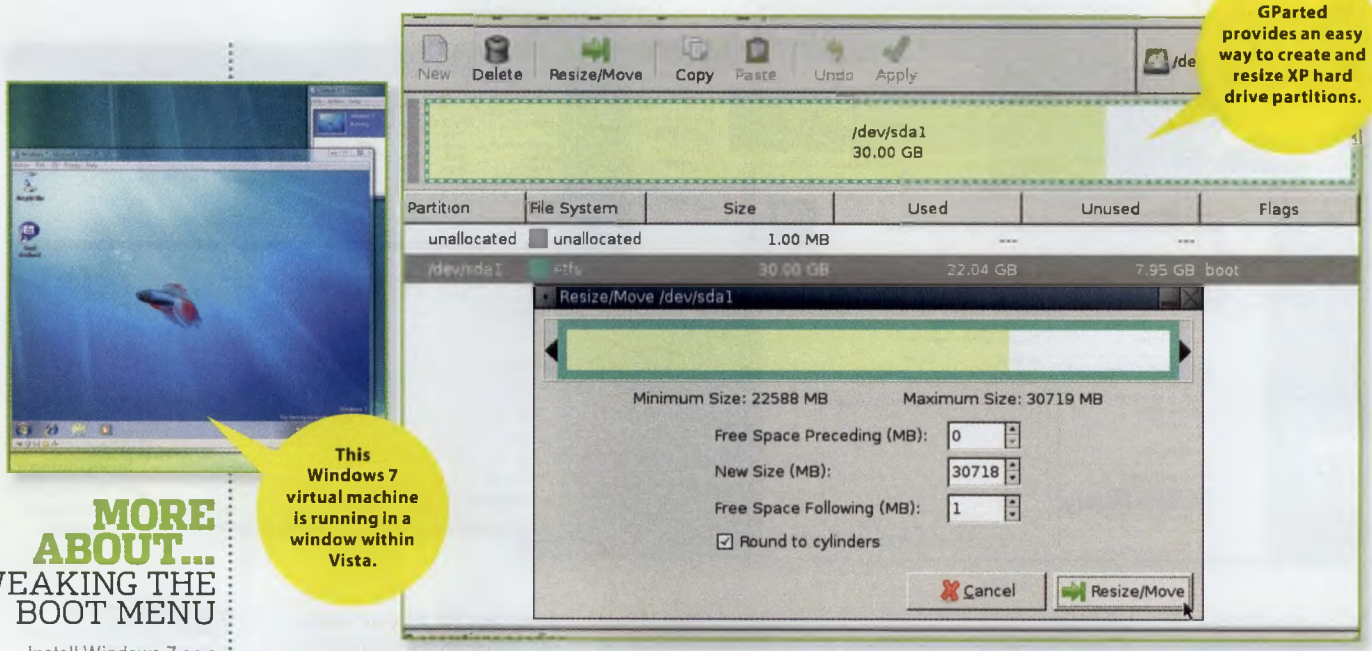
If you want the full Windows 7 experience, your best option is to create a separate hard drive partition where the operating system can be installed. When your PC boots you'll then see a new menu with the option to launch either Windows 7 or your current OS. Choose the one you need and it'll have complete access to your hardware with none of the limitations of a VM.

If you're running Windows Vista then you can partition your hard drive directly from the Disk Management console. This shouldn't cause any problems at all, but there are no

DO THIS... OPTIMISE VIRTUAL PC

Once your Windows 7 VM is set up, select 'Action > Install > Virtual machine additions'. This adds extra features (see the Help file) and improves Windows 7 performance. If your VM is still performing poorly then try giving it more memory. Choose your VM in the Virtual PC console, click 'Settings', find 'Memory' in the list and increase the RAM value (we'd recommend at least 128MB to make a noticeable difference, unless your host PC can't spare it). Your VM's hard drive might have become fragmented, which also slows things down. Defrag the host PC's hard drive and you'll often see real improvements.

If Virtual PC is dragging down the performance of other apps on your host PC, then launch the Virtual PC console, click 'File > Options > Performance' and select 'Give processes on the host operating system priority'. If you then switch away from Virtual PC to do something else but leave the VM running, it will consume significantly less CPU time and should end up being a far less system-intensive resident.



MORE ABOUT... TWEAKING THE BOOT MENU

Install Windows 7 on a separate partition and you'll see a new boot menu every time your PC starts that prompts you to launch Windows 7 or an 'earlier version of Windows'. That slightly vague description can be changed from within Windows 7 with the command-line tool 'BCDEDIT'. However, free GUI tools like EasyBCD (**http://neosmart.net/dl.php?id=1**) are easier to use. Make sure that your original Windows XP or Vista partition can be seen from Windows 7's Explorer. If it's not, launch 'DISKMGMT.MSC' (in Windows 7), right-click the partition without a drive letter, select 'Change drive letter or path' and give it a letter. Now launch EasyBCD, click 'Change settings', select 'Earlier version of Windows' in the entry-based Settings box, change its name to whatever you'd prefer, and click 'Save settings' to update the menu. EasyBCD can also help fix boot menu problems. Use the 'Change settings' option to fix a broken menu entry, click 'Add/remove entries' to add a new operating system to the list or click 'Manage bootloader' to reinstall the bootloader. As a last resort you can even remove it altogether and restore the XP system.

guarantees, so back up your hard drive before you start. Then launch 'diskmgmt.msc', right-click your current hard drive partition, select 'Shrink volume' and choose the size you'd like to allocate to Windows 7. Again, this should be 25GB at an absolute minimum, and ideally a lot more. Give Windows 7 as much drive space as you can spare.

Now right-click the unallocated space, select 'New simple volume', and work through the wizard, allocating all of the available space to your new partition and performing a quick format with the NTFS filesystem. And that's it: the partitioning is done.

PARTITIONS ON XP

If you have Windows XP, life is a little more complicated, as you'll need to download third-party software to carve up your drive. Fortunately, there are plenty of free and very capable options. GParted (**http://gparted.sourceforge.net**) is one of the best out there. Download the GParted ISO disc image and use it to create a bootable CD. Your disc-burning software should have an option to handle ISO images, but if you have problems then use a third-party tool like ISO Recorder, which is available from **http://isorecorder.alexfeinman.com/isorecorder.htm**.

Before you continue, make sure you've backed up your hard drive, or at least any critical data on it. GParted is one of the most heavily used and respected drive-partitioning tools around, so it's most unlikely that your hardware will come to harm, but any low-level drive tinkering of this sort has some level of risk attached. As always it's better to be safe than sorry with this sort of thing.

When you're ready to go, boot from the GParted CD, choose the 'Default settings' option and then select 'Don't touch keymap'. Next, pick your language and accept the default operating mode, then locate the partition you're going to resize, select 'Resize/Move' and choose how much space you'd like to give Windows 7 (remember, we suggest 25GB or more). After that, click 'Resize' then 'Apply'.

Next, right-click over the unallocated space and select 'New' from the dropdown menu to see the Create New Partition dialog. Make sure both 'Free space' values are set to zero and that the 'New size' value is set to the maximum partition size, so your new partition is using all the available space. Choose 'Primary partition' from the 'Create As' list, select 'NTFS' as your filesystem and click 'Add' then 'Apply' to create a Windows 7-sized space on your drive.

INSTALL WINDOWS 7

Now boot your PC from a Windows 7 DVD and work through the installation process. Be sure to choose the 'Custom (advanced)' installation type, then point the set-up program to your new empty partition. Because you're installing Windows 7 to your real hard drive as opposed to a virtual machine, be very careful here. Click the wrong partition and your current Windows files will be replaced by Windows 7 – not what you wanted at all.

Once you've passed this stage, there's very little more that you need to do. The Windows 7 setup program requires fewer clicks than previous versions, and it gets its work done more quickly too, so a dual-boot installation could be finished in 15 to 30 minutes. You can then start Windows 7 from your PC boot menu that will now appear at startup, or the Virtual PC console, and start discovering exactly what all the fuss is about.

TRIED AND TESTED

So which Windows 7 trial method is best, then? In most cases, we prefer virtual machines. They're slower and don't fully support 3D graphics or USB devices, but in general that really doesn't matter.

We think most people want to explore Windows 7 to try out the new taskbar, libraries, Start menu, search tools or Explorer, not play Crysis or watch Freeview on a USB TV tuner. If that sounds like you, then it makes sense to try it in a virtual machine before you do anything else.

However, if after trying the virtual machine you find that you want a more complete look at Windows 7 – or if you know that you'll be frustrated by the lack of functionality within a VM – give dual-boot a try. It's surprisingly easy, particularly if you're running Vista, and you could have a system running in under 45 minutes. apc

PROGRAMMING

First steps in C# Part two

Make C# your new language of choice with the second part of our guide. **Peter McGann** shows you how.

WHAT YOU'LL NEED

VISUAL STUDIO 2008
This app supports the C# programming language, and Express editions are free.

SOME PROGRAMMING KNOWLEDGE
Ideally you should have some knowledge of object-oriented programming. If you do, you'll find it easier to get started.

After following part one of this series (July page 100), you ought to be reasonably familiar with the principles of creating console applications and the concept of inheritance, which we're applying to a nominal system of classifying droids. You should also have set up a simple input loop in the console windows. Now we're going to implement the droid hierarchy, so that we can define a set of behaviours common to all droid types while also implementing more specific functionality.

This time we'll add a new class to the project and call it 'Droid'. This will act as the base class for our specific droid types. The droid will need to understand and process some simple commands, such as the ability to be activated or deactivated. Another base property we'll give our droids is a name, letting us personalise the application in a fun way and give the user the ability to control a specific droid by typing their name into the input loop. In our example, we'll be creating two specific droid types: an IODroid and a ProcessDroid.

EARLY OUTLINES

It's always a good idea to outline the structure of any given module or class and then add the exact implementation details later. The idea behind this is that the essential architecture of the application can be constructed without having to write any implementation code.

Our Droid class exposes a Name property, to allow the main program to access it, while using a private string to store the name:

```
private string m_Name;
public string Name {
get { return m_Name; }
}
public virtual bool ProcessCommand(string command) {
}
```

We've also exposed a method called 'ProcessCommand()', which will be called from the main program when the user has inputted a line into the console window. Now we need to let the ProcessCommand() method know what constitutes a valid command and how to handle it. We need a list of commands for the base class that will constitute the basic commands used by all variants:

```
private List<string> m_Commands;
protected List<string> Commands {
get { return m_Commands; }
}
```

Of note here is the use of a generic List object to contain all our commands. A list is a handy storage object with some useful functionality that's not found in a standard array. To set up commands in a consistent way that will work for both the base class and derived classes, we'll implement a private method, called by the base class constructor, but made virtual so that derived classes can override the base implementation. This is a very important concept in OOP, and it's demonstrated within our application in a way that should be reasonably understandable. The method outline can be something as simple as:

```
protected virtual void SetupCommands() {
}
```

The 'virtual' keyword means that derived classes can override the default implementation, which is what our specific droid classes will do. Because we don't want our Droid object to be instantiated directly, but rather as a specific derivative, we can declare the Droid class as abstract:

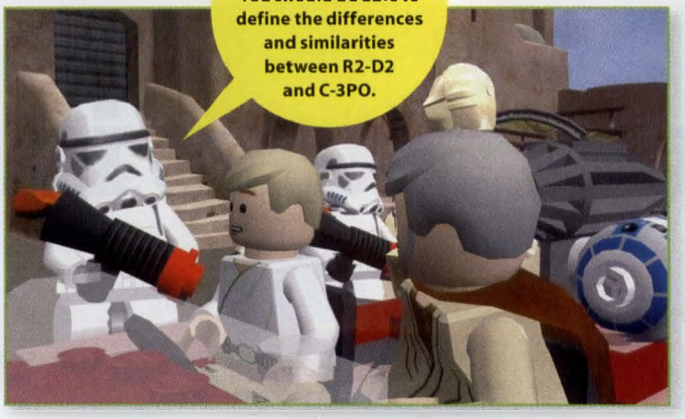
```
abstract class Droid { ...etc }
```

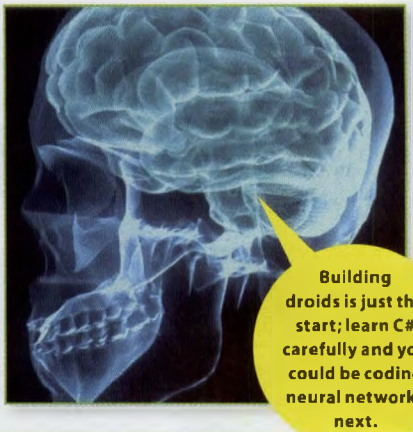
Another way of preventing instantiation is to create a custom constructor and set its access modifier to 'protected'. This means that only derived classes can call this constructor. The custom constructor can be passed a string parameter that's used to assign the name property, as this is something that will seem natural when instantiating our derived object later on.

It makes sense for it to create the command list as the object is constructed, so we'll add a call to the protected 'SetupCommands()' method that we defined earlier:

```
protected Droid(string name)
{
m_Name = name;
SetupCommands();
}
```

The last structural detail to add to the class will be a Boolean value indicating the active status of the droid. The only real purpose of this is to add a little flavour to the


"These aren't the droids you're looking for." You should be able to define the differences and similarities between R2-D2 and C-3PO.



DO THIS... ADD SOME INTEREST

A console application, by default, looks a little dull. Simple white text on a black background isn't very exciting. One easy way to spice things up is to change the foreground colour of the console window using the 'Console.ForegroundColor' property. When text is next written using either 'Console.Write()' or 'Console. WriteLine()', it will appear in the selected colour. To reset the colour to default after text has been written, use the 'Console.ResetColor()' method.

```
Console.ForegroundColor = ConsoleColor.Green;
Console.WriteLine("Green Text");
Console.ResetColor();
```

Note that the ForegroundColor property of Console is set using values defined in 'ConsoleColor'. This is an enumerator used to give context to what would otherwise be a meaningless number. For example, 'ConsoleColor.Green' is actually an integer (int) value of 10, but it's much simpler for the developer to understand the result when writing a colour description. Remember that Console.WriteLine() will write the relevant string to the console window and append a newline. Console.Write() simply writes the string to the console window with no newline appended. We have used Console.Write() to display a cursor input arrow (>) for the user's input, which allows them to type their command on the same line.

application by giving the user the ability to activate or deactivate a droid. Deactivated droids will be unable to process any commands that require activation:

```
bool m_Active; // true if activated, false if shutdown
```

ADDING DETAILS

Now we have the basic structure in place for the Droid base class, we can flesh out a few details before creating the derived classes. Remember that the purpose of the base implementation of the SetupCommands() method is to add basic commands to our list, commands that will be common to all droids. As any programmer should know, repeating hard-coded data is a needless and frankly bad thing. You never want to have to search through a code listing changing all of the instances where you used word 'X' because you now need it to read 'Y'.

With this in mind we'll define our commands as constants that can be used in both the SetupCommands() and ProcessCommand() methods:

```
const string COMActivate = "activate", COMShutdown = "shutdown";
```

Now we'll add these as commands to the command list:

```
protected virtual void SetupCommands()
{
// initialise the command list with no specific size limit
m_Commands = new List<string>();
// add basic commands common to every droid
m_Commands.Add(COMActivate);
...etc
}
```

For these simple commands, the ProcessCommand() method can be filled in easily. The method simply needs to check the string parameter and act accordingly. For the sake of brevity we won't fill in all the details here, but this snippet of the full code gives you the overall idea:

```
public virtual bool ProcessCommand(string command)
{
bool validCommand = true;
if (command == COMActivate) {
if (m_Active)
Console.WriteLine("Droid is already active");
else {
m_Active = true;
Console.WriteLine("Droid is now active");
}
}
return validCommand;
}
```

The method returns a Boolean value indicating whether the command was recognised, meaning the main program can indicate whether the droid was able to process the command. In the full method, a final 'else' is used to set 'validCommand' to 'false' when all valid commands have been checked.

DERIVED FUNCTIONALITY

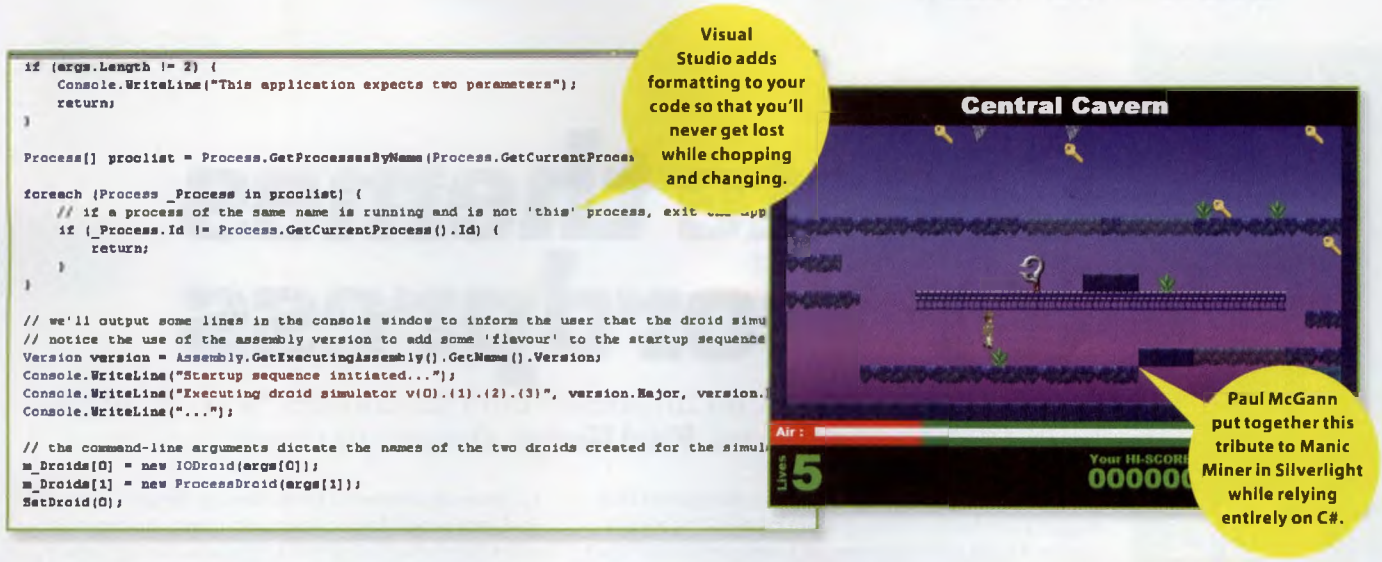
Now we can create the specific droid types for our application and have them derive their base functionality from the Droid class. First, add a new class to the project called 'IODroid'. To instruct the compiler that the IODroid will inherit from Droid in C#, we use a colon symbol after the class name, like so:

```
class IODroid : Droid
```

Now we can access base functionality (at least that which is not private to the Droid class) by using the 'base' keyword. In our Droid class we made the constructor protected; this means that only derived classes can instantiate the base class using this constructor. In order for us to be able to create an instance of our IODroid, we'll make the constructor public:

```
public IODroid(string name) : base(name)
{}
```

Notice that the constructor simply calls the base constructor with the name parameter passed to its constructor. This means that we would instantiate the IODroid class, and this in turn would instantiate the base class and set the name property, which is now accessible in the IODroid class. The next step is to implement functionality specific to our new droid class: SetupCommands() and ProcessCommand() methods.


Visual Studio adds formatting to your code so that you'll never get lost while chopping and changing.
Central Cavern
Air :
Lives 5
Paul McGann put together this tribute to Manic Miner in Silverlight while relying entirely on C#.

These methods were defined as protected and virtual in the base class, which allows derived classes to override the implementation while optionally retaining the base implementation unchanged.

To make sense of this, look at the base implementation of SetupCommands(). It defines a list of commands common to all droids. We use the 'override' keyword to supersede this:

```
protected override void SetupCommands()
{
// setup the common commands
base.SetupCommands();
// add specific commands for this droid
Commands.Add(COMOpenFile);
}
```

The 'COMOpenFile' parameter is a constant string defined in this class, just like the other commands in the Droid class:

```
const string COMOpenFile = "open";
```

Notice the access modifier is set to 'protected'. This is because this method is never called outside of the Droid inheritance chain. We'll do the same thing with the ProcessCommand() method, but we'll make the access modifier public, as this method needs to be called from the main program.

These same steps should be repeated for another class called 'ProcessDroid', giving us our completed inheritance hierarchy.

ADD CONTROL CODE

We can add the control code into the Main method of the Program class where our input loop has previously been defined. Firstly, in the Program class, we'll need a couple of module-scope variables to contain our droid instances. The variables are static because there is only ever one instance of the Program class:

```
// two droids, one of each type for the simulator
static Droid[] m_Droids = new Droid[2];
// the current droid awaiting commands
static Droid m_CurrentDroid;
```

Now we create an instance of our two droid types:

```
m_Droids[0] = new IODroid(args[0]);
m_Droids[1] = new ProcessDroid(args[1]);
```

Notice that the constructors take the appropriate index of the 'args' parameter as the droid name. This means that the console application is expecting two parameters when it's executed: the names of the droids. We can make sure that this is the case by checking a common property of all arrays, the length:

```
if (args.Length != 2) {
Console.WriteLine("This application expects two parameters");
return;
}
```

We'll also start with the droid instance ('m_CurrentDroid') set to the first droid:

```
m_CurrentDroid = m_Droids[0];
```

Now we can allow the user to switch between droid instances:

```
if (command == m_Droids[0].Name. ToLower())
m_CurrentDroid = m_Droids[0];
else if (command == m_Droids[1]. Name.ToLower())
m_CurrentDroid = m_Droids[1];
else
m_CurrentDroid.
ProcessCommand(command)
```

Notice that any other input will be processed as a command to the current droid. And that's that for this tutorial. Best of luck in all your C# endeavours. amc

MORE ABOUT... COMMAND LINE PARAMETERS

To run the droids application using command-line parameters without using the external 'cmd' utility, right-click on the Droids project node in the Solution Explorer and select 'Properties'. Now choose the Debug tab and add your command line arguments in the specified window, separated by a space. If arguments require a space within themselves, surround the argument in double quotes.

TIP... TRY DIFFERENT COMMANDS

If you type 'open ""' when using the IODroid, it should simply open a new Explorer window in the 'My Computer' section. If you type 'browse' (with no address specified) when using the ProcessDroid, Internet Explorer will be activated just as if you had simply double-clicked the icon on the desktop yourself.

WEB SITES

Create themes for Wordpress

Make your blog look as impressive as its content with a custom-built Wordpress theme. **Karl Hodge** shows you how.

WHAT YOU'LL NEED

BASIC HTML SKILLS

To complete this tutorial, you'll need to know how to build web pages in HTML using CSS.

A CODE EDITOR

Something like PSPad (www.pspad.com) or Adobe Dreamweaver CS4 (www.adobe.com/dreamweaver) will be perfect for this project.

WORDPRESS 2.7

You'll need to have access to a copy of the software installed on a remote host. Grab the files from www.wordpress.org.

Are you running a site using Wordpress, the open-source blogging and content management system? It's a great tool for the job, but its themes are pretty generic and don't exactly make a web site sparkle. If you've spent time making your prose shine, you'll want to show it off to its best effect. Luckily, making your own themes from scratch is easier than you might expect, even if you've never done any PHP coding before.

With the step up to 1.5, Wordpress introduced a modular theming system that looks pretty complicated but is actually fairly easy to implement once you've grasped the basics. That's what we're going to do here – take you through the process of creating a no-frills template.

There are four basic stages to get to grips with when designing a new template. First, the page layout is created with HTML and CSS. Second, PHP placeholders for Wordpress content are added into the HTML page (we've provided those for you at **http://apcmag.com/dvdware.htm**). Third, the HTML document is divided into several PHP documents. Finally, the PHP documents and your CSS file are uploaded to your Wordpress installation, where they'll be ready for you to use.

CREATE THE LAYOUT

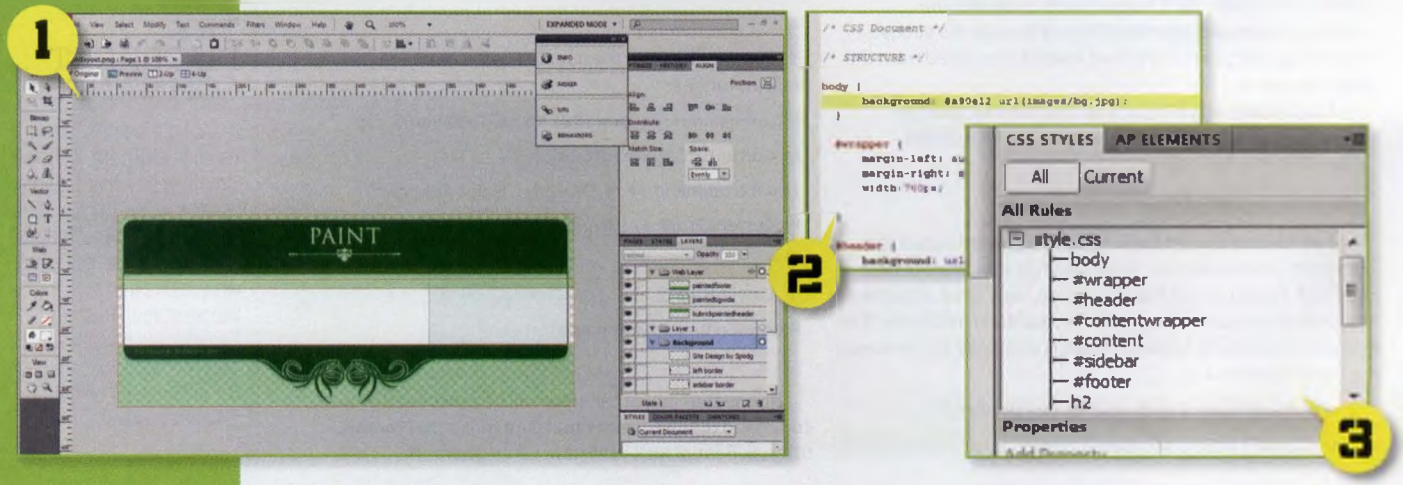
1 We've already created a simple layout for you to follow, and we've annotated it throughout. (You'll find the files at **http://apcmag.com/dvdware.htm**). The template that we've created is as standard as it gets, containing the following basic components: a head section, a sidebar, a content section and a footer. These are the minimum requirements for Wordpress. We used Fireworks to sketch out our layout. You can see from the slices visible in the illustration below that it's organised in a standard grid with right-side navigation. You can choose to have the sidebar run horizontally under the header, if you wish, or you can keep the traditional approach that we have. Your effort doesn't have to be as graphically rich as ours, either. In fact, you can skip directly to the next step.

BUILD THE LAYOUT

2 Using a code editor, we can quickly create a layout in CSS that can be generically applied to any HTML page with the same declared classes and IDs. A quick tip: CSS IDs define a specific element, while a class can be applied to many different elements. It's good practice, then, to use IDs for structural elements and classes for formatting. If you look at our example CSS from **http://apcmag.com/dvdware.htm** (found in the 'style.css' file), you'll see that it's divided into a section with structural elements defined first (IDs) followed by a section with formatting rules (classes). In the structural section, we've created rules that define the positioning of the header, content, sidebar and footer of the page.

You'll also notice that the whole thing is wrapped in a block-level element that we've labelled 'wrapper'. This element centres the design in our page.

A structural block element called 'contentwrapper' is also present. We've used this element to add a background image beneath the content and sidebar.



CREATE THE CSS

3 Though we hand-coded our CSS (and will hand-code the HTML at the next stage), you can use a WYSIWYG tool like Adobe Dreamweaver or the open-source tool Kompozer to create your page instead. If you do this, just make sure that you place the CSS code in an external file. If you're using Dreamweaver CS4 you can place the CSS in an external file after you've finished coding the HTML page – just go to the CSS Styles panel and choose 'Move CSS rules' from the menu.

BUILD THE TEMPLATE

4 Continuing with our tips for hand coders, use your HTML skills to code a page containing the block-level elements in our example style.css file. You'll find a full, annotated example to follow in the file 'fullbuild.html'. If you copy the contents of the tutorial folder to your hard drive and open fullbuild.html, you'll see the basic layout for our template. The next stage is to 'slice' this HTML into separate files. That's the key to successful template building. Wordpress divides your page into separate sections, each with their own PHP file and each with their own fragment of the page embedded. Using this method ensures that block-level elements that are opened in one fragment are closed properly in another when the blog engine comes to render the final layout.

CREATE FIVE PHP SLICES

5 Wordpress requires only five separate PHP files by default. They are 'header.php', 'index.php', 'sidebar.php', 'footer.php' and 'functions.php'. However, functions.php is only required if you use the 'widgetised' sidebar function in Wordpress; the file contains code that enables you to use sidebar widgets automatically.

If you look at the file fullbuild.html in a text editor again, you'll notice that we've annotated each section with a comment. Each delineated section is a 'slice'. So, to create header.php, we copied the code from '<!-- HEADER -->' to '<!-- header end -->' and pasted it into a new file. We did the same to create footer.php and sidebar.php, although we did add some Wordpress code to the latter. We'll look at that in a bit more depth in a moment.

MODIFY THE FILES

6 The file index.php is more complex because it's used the other parts of the template, stitched together. Have a look at the file in a text editor and you'll see that the basic mechanism for including files is PHP code. For example, the following snippet inserts the code contained in the file header.php into the page at the point it appears:

```
<?php get_header(); ?>
```

You should also notice that our index.php file has the content section code from the HTML file we created embedded into it. There are some Wordpress PHP commands inside the content block-level element that place the content of blog posts or pages into your layout. To save time, simply cut and paste that code into your own layout.

INCLUDE EXTRA CODE

7 Both the sidebar and functions files require additional code. To enable the widget functions in newer versions of Wordpress, add the following code to 'functions.php':

```
<?php
if ( function_exists('register_ sidebar') )
register_sidebar();
?>
```

The sidebar code is much longer — just cut and paste from our version of sidebar.php. Then see 'Install your themes' (above right) for how to install your new theme.

DO THIS... INSTALL YOUR THEMES

Installing your theme is pretty straightforward. Place all your PHP files and style.css in a new folder, making sure that you include any image files too. Name the folder after your theme and then use an FTP to connect to your remotely hosted Wordpress installation. Navigate to the '/wp-content/themes' folder in the Wordpress folder and upload the theme files. When you return to the Manage Themes section in your Wordpress site's dashboard, your custom theme will be listed ready for installation.

TIP RESOURCES

Wordpress has amassed a library's worth of documentation. You can begin to delve into it at **http://codex.wordpress.org**. Some of the best sections to start off with are 'Blog Design and Layout' and 'Template Tags'. There's also a great collection of tutorials on sprucing up sidebars which can be found at **http://codex.wordpress.org/Customizing_Your_Sidebar**.

The simple layout we created can be used as the basis for more complex templates, but the best way to learn is by example. Check **www.wordpress.org/extend/themes** to preview other themes live before downloading.

masterclass
STEP-BY-STEP TRAINING

IN THIS SERIES

Learn how to network every digital device in your home, everywhere from the home theatre to the bedroom. This is the ultimate home-networking tutorial on how to turn your castle into a 21st-Century digital paradise.

APC EXPERT

THE CONNECTED GUY

David Neiger is building the connected house in a real home and will be filing regular columns as he goes along. David is a qualified engineer with many years of networking, IT implementation, consulting and project management experience.

WHAT'S NEXT?

PART 9

SEPTEMBER '09
SONY PLAYSTATION 3 AND STREAMING MEDIA

PART 8 CREATE THE ULTIMATE CONNECTED HOME

The Xbox Home Theatre

Not just a games console, the Xbox works as an extender to stream music and videos from your PC to your TV.

As we discussed in last month's Masterclass, setting up a Windows Media PC in your lounge room is not for everyone. Irrespective of how much a media centre PC may look like an appliance, it's still a PC and brings with it all the issues of size, noise, heat and managing an OS. Even in our Connected Home my wife flatly refuses to use the media centre PC, claiming it is just too hard. If you have a considerable music and video library on your PC or want to rent movies or television shows from online providers such as BigPond Movies, there are more family-friendly ways of bringing this content to your lounge room TV. One solution is to use a media extender, a device that streams content from the PC to the TV. There is a plethora of media extenders, ranging from the Linksys DMA2100 and D-Link DSM-750 to ones so far only available in the US, such as the HP Media Smart Connect or Samsung Media Live devices. But one of the easiest to use, and arguably the most fun, is the Xbox 360.

Everyone knows the Xbox 360 as a games console that plays games as well as allowing you to socialise with friends using IM, Facebook and Twitter. But what many people overlook is that the Xbox 360 makes a perfect media extender, is a superb DVD player and will very soon be able to download full high-definition 1080p movies from the Xbox Video Marketplace. Since an Xbox is small and does not make noise (aside from the bloodcurdling sounds of gameplay) it is an ideal option for streaming content from PCs into the lounge room. The advantage of using a game console or appliance rather than a computer is that the interface and menu system are designed specifically to provide easy access to functions via the wireless control pad or Universal Media Remote. You don't have the hassle of trying to use a mouse via a remote control or navigating through a GUI designed for use with a keyboard.

The Xbox 360 Pro we have in the Connected Home comes with everything you need to use it as a games console. However, if you want to make it work as a media extender you need to purchase a few accessories. The Xbox 360 has only an Ethernet port, which is fine if your lounge room is cabled (like ours in the Connected Home), but if you don't have the luxury of network cabling throughout your place, you need the Xbox 360 Live Wireless Network adaptor, which plugs into the USB port of the Xbox and connects you to the net via your wireless router. The wireless control pad is great for games and although you can use it to fully control media playback, the Xbox 360 Universal Media Remote is a better option. The Universal Media Remote looks like a normal remote control for a DVD player, allowing you to control media playback directly, pushing buttons to fast forward, pause or select media rather than having to move a game controller up or down. Buttons on the remote allow you to go directly to the media centre, watch live TV and access the program guide as well as control volume. It is well worth the money, particularly if other people in the family just want to use a media device rather than a games console.

The Xbox 360 Pro comes with a multi-connector analogue cable to allow you to plug into an older TV using composite video (not very good) or component video for HD televisions. Audio output is analogue stereo or digital optical, so you will need to purchase a TOS (fibre optic) cable to connect the Xbox to your surround sound system. A better option however, is to purchase an HDMI cable and do away with the Xbox multi-socket monster, since HDMI gives you both HD digital video and multi-channel sound in the single cable. Since our Yamaha RX-V665 receiver supports HDMI, we can simply plug the Xbox 360 into an HDMI input on the receiver and the HDMI output into the Sony Bravia television.

SETTING UP THE XBOX

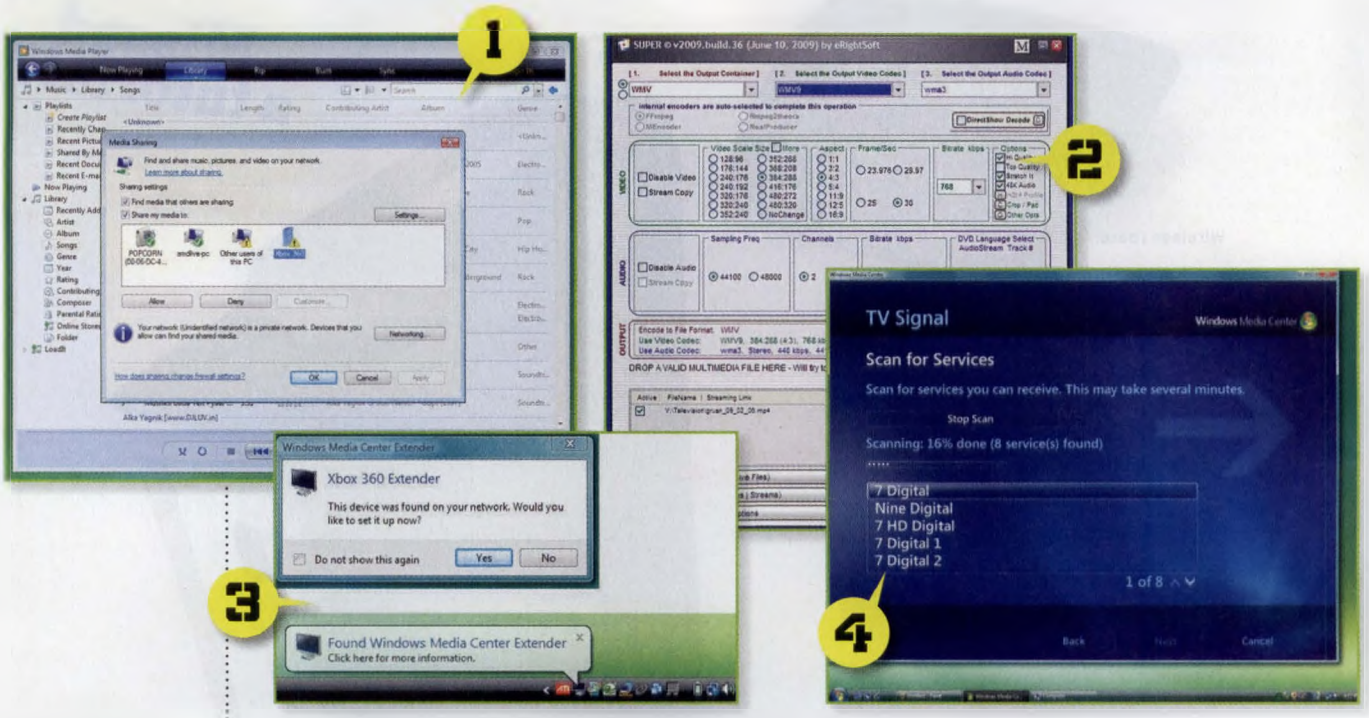
With everything plugged in, it's now time to set up the Xbox 360. The console powers up and guides you through the setup. Even though we're using the Xbox primarily for media streaming from a

Missed a tutorial?

Visit www.magshop.com.au for back issues of APC

GETTING CONNECTED

Network cabling in orange
HDMI connections in red
Antenna leads in blue



MORE ABOUT... ALL THOSE CABLES

Despite minimising the number of cables by using HDMI, we still have a fair few of them running around the place: Ethernet for the Xbox 360, Bravia television, Blu-ray player and media centre PC, numerous power cords and of course several HDMI cables. A way of hiding the mess is to purchase some cable covers such as the DOSS Cable Organiser (from vendors such as Radio Parts) and bundle the cables neatly together. I have had many an argument with home theatre installers over this, but according to my engineering training you should run the power cables away from networking or other cables. Whilst the chance of interference is low, it is not expensive to purchase a few extra cable organisers and keep the power leads away from the network, audio and HDMI leads just to be safe.

PC, it nevertheless requires you to set up an avatar and name in order to get onto Xbox Live, Microsoft's online gaming service.You will need Xbox Live to purchase movies (when they become available later this year) and if you want to use the Xbox to keep in touch with friends. Of course, if you just happen to want to play a few games, Xbox Live is the portal for multiplayer games as well as where you share tips and tricks with other gamers. Once the avatar is set up and updates downloaded (automatically), the Xbox is now ready to talk to the PCs, to stream their content to the TV.

1 From the setup screen you can search for media centre PCs. In our case, we already have a media centre PC, the AMD Live!, set up, so we could connect to it directly by noting down the 8-digit passcode and entering it into the media centre PC when we add an extender. Since most people do not have a media centre PC already set up, we will explain how to make your PC act as a media centre and stream content to the Xbox.

SETTING UP YOUR PC

You will need a PC running either Windows XP Service Pack 2 (or later), XP Media Center 2005 Service Pack 2, Vista Home Basic, Vista Home Premium or Vista Ultimate. If you have an Apple Macintosh it may be possible to stream content to the Xbox using software such as Connect360 from Nullriver Software (**tinyurl.com/2sl6uw**) although we have not tried it ourselves. Windows 7, which has Media Center software built in will also work nicely. If your PC runs XP or Vista Home Basic you will need to enable media sharing from Windows Media Player 11 (or Microsoft Zune software, although we don't recommend it) and use it to stream content to the Xbox. This is a more limited option than using the Media Center software in Vista Home Premium or Vista Ultimate since it does not give you full control over media or the ability to stream or record live TV.

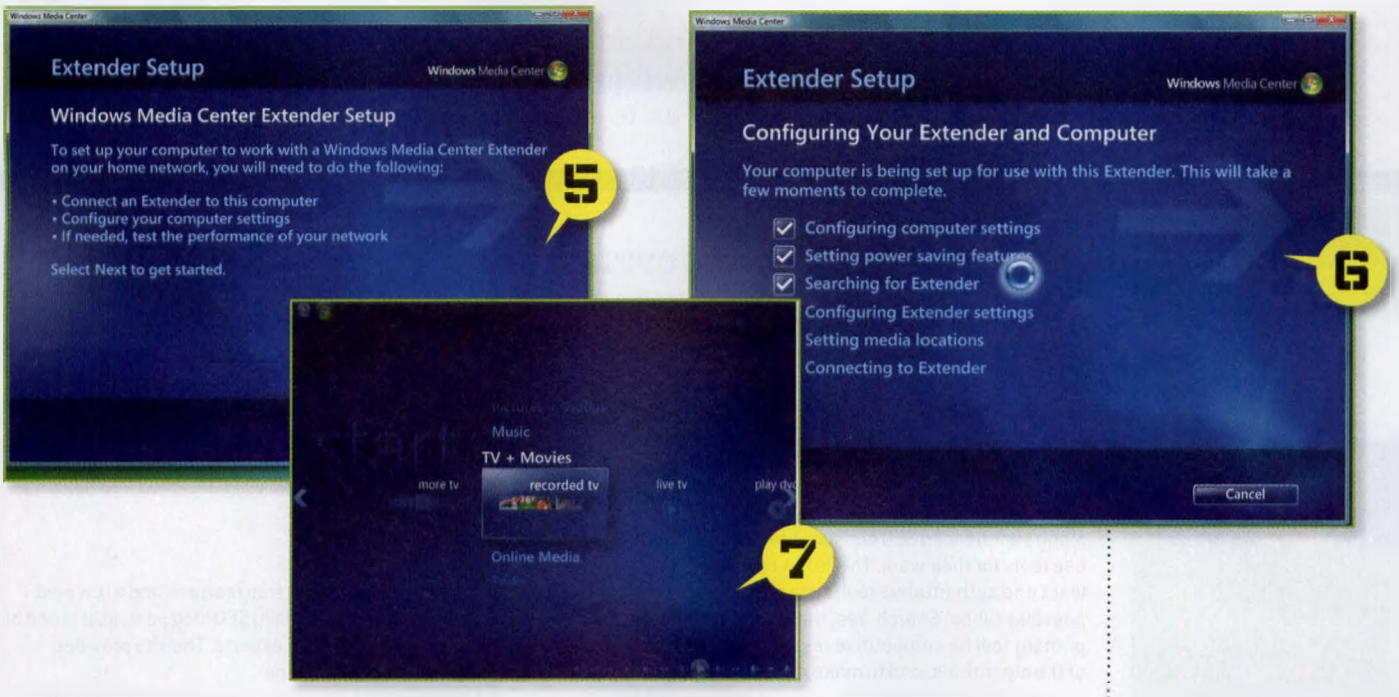
With the Windows Media Player option, the first thing to do is to make sure you are running the software. If not, you can download it from links at **www.xbox.com/pcsetup**. The next step is to run Live Update on your PC to download all of the latest security updates and patches.

Install Windows Media Player 11 on your PC and create a directory where you will store all of your media. Whilst Media Player can search your entire hard drive for content, if you have it all organised in the one place, you can reduce the amount of time Media Player needs to index your files.

Open Media Player and select Library > Media Sharing. You will be presented with a box showing all of the devices that can stream media from your PC, including the Xbox 360. Enable sharing and click OK. On the Xbox 360 you should be able to see your computer within the audio and video libraries. When you select the computer you will see the audio and video available for sharing and will be able to stream music (WMA or MP3) to the Xbox 360. If you have an iTunes library (which uses the AAC MP4 format) you will either need to convert the music to MP3 within iTunes or use another software package to convert it to WMA format.

Streaming video instead of music is more problematic since television recordings, DVDs camcorders and many download providers use either the MPEG-2 or MPEG-4 formats, which are not directly supported for streaming by Media Player 11. If you want to use your Xbox 360 to watch these videos you will need to convert them into unprotected WMV format. Although the Xbox can play MPEG-4 Part 2 or H.264 formats, they are not directly supported in Media Player 11 (but will be supported in Media Player 12 under Windows 7). If you want to use MPEG-4 or H.264 (iTunes) you will need to install a Direct Show Plug-in to allow Media Player 11 to recognise these formats. That is why it is easier to convert your video to WMV, which is supported by both Media Player and the Xbox without any additional software.

2 Super is a fast, free and reliable video conversion package available from **www.erightsoft.com/SUPER.html** and reads most video formats and allows you to convert them into just about any format including WMV. Unfortunately, conversions cannot be made on the fly (ie. whilst streaming the media), which means they take time and quality is often degraded when converting from another compressed format (such as MPEG-2).


Extender Setup
Windows Media Center
Windows Media Center Extender Setup
To set up your computer to work with a Windows Media Center Extender on your home network, you will need to do the following:
• Connect an Extender to this computer
• Configure your computer settings
• If needed, test the performance of your network
Select Next to get started.
5
Extender Setup
Windows Media Center
Configuring Your Extender and Computer
Your computer is being set up for use with this Extender. This will take a few moments to complete.
Configuring computer settings
Setting power saving features
Searching for Extender
Configuring Extender settings
Setting media locations
Connecting to Extender
Cancel
6
Music
TV + Movies
more tv
recorded tv
live tv
Online Media
7

Super is designed for the more technical user, and there are many conversion options which are quite involved and confusing if you don't specialise in video editing. If you just want to convert video without getting too technical, there are several freeware packages such as WM Converter 2 that will do the job by offering simple conversion options such as low, medium or high quality.

USING MEDIA CENTER IN VISTA

You can use Media Player 11 to stream content even if you have Vista Home Premium or Ultimate, but a better option for the latter is to use Windows Media Center and configure the Xbox 360 as an extender, because it will allow you to stream live and recorded TV as well as MPEG-2 media files without conversion. The first step is to set up your tuner card. In the Connected Home we are using a Silicon Dust HD HomeRun dual digital networked tuner. Unlike a tuner card, which must be physically installed in the PC (and can only be used by that PC), the HD HomeRun plugs into the network where any PC can access the tuner. Regardless, once your tuner is set up on your PC, the next step is to start Windows Media Center.

Media Center will recognise the tuner, enabling you to tune channels, watch and record television normally (in our case, Media Center recognised the dual tuners and gave us the option of recording two programs simultaneously). You will then need to scan for television stations, a slow process since Media Center is not smart enough to rapidly scan the available channels in each area. Once you have Media Center working properly, the next step is to organise your content. By default Media Center will use your public folders to store television recordings and music. You can configure Media Center to use other folders (or add folders to a watch list) but it is simpler to just consolidate all of your media files in the single location.

ADD THE XBOX AS AN EXTENDER

The next step is to add the Xbox 360 as an Extender. Go to My Xbox (on the Xbox) and select the Media Center option. If you have the Universal Media Remote you can just push the Media Center Button. The Xbox will search the network and display an 8-digit security code on the screen. Write this code down and go back to your PC.

3 Your PC should have found the Xbox 360 Media Extender on your network and will prompt you to set it up. This will open Windows Media Center and guide you through the setup process. If you have already set up Media Center you can proceed through to set up Extenders; otherwise, follow the prompts to set up your tuner card and preferences.

4 **5** Setting up the Xbox is easy from this point on. Simply enter the 8-digit security code you wrote down and click next. Media Centre will automatically reconfigure your firewall and networking to allow the Xbox to connect to your PC. You will also be asked whether you want to enable Away Mode which is a special mode in Vista (and XP Media Center) that makes the computer appear to be turned off (no display or audio) when in fact it is on and processing media tasks such as recording television or streaming media. Given that there are no real power savings in doing so, don't bother enabling this mode.

6 You will then be prompted to share your media with the Xbox. If you want to stream music, photos and videos from your PC in addition to watching and recording television, select yes. Finally Media Center will finish configuring itself and the Xbox. Once this is done you will be able to use the Xbox exactly like a Media Center PC without the hassle of having to update it, load drivers and operate it with a mouse/ keyboard.

7 Within Media Center you will be able to stream MPEG-2 video (from recorded television, camcorders or DVDs) as well as purchase movies from BigPond movies via your PC. If you can be bothered updating codecs and installing plug-ins it should also be possible to stream MPEG-4 movies and AAC (iTunes) music to the Xbox. Of course you can always wait for Windows 7, which will include an enhanced Media Center that supports additional file formats.

Next month we will look at connecting up a Sony PS 3 and streaming media over DLNA devices such as hi-fi systems, mobile phones and Sony Vaio notebooks. APC

DO THIS...
SORT OUT YOUR POWER

The other thing you will need is power boards, preferably with surge protection. In our home theatre system we have a Bravia television, a network hub, media centre PC, charging unit for the Logitech DeNovo Edge keyboard, Yamaha RX-V665 surround amplifier, Xbox 360 Pro, Blu-ray player etc. That's seven plugs even before we add other equipment such as an internet radio, audio components, notebook, camcorder and home automation devices. Several eight-way surge protected power boards are a great investment. Whilst on the subject of power, if the wiring in your place is old get an electrician in to check the power outlets to make sure you don't overload the circuits. On its own, each device might not use that much power, but if you add up the amount of power drawn by everything in total it can be quite a lot!

IN THIS SERIES

Did you build a web site and nobody came? Ash Nallawalla walks you through everything you need to know in order to optimise your web site for search engines so as to generate traffic and get hits on your site.

APC EXPERT

ASH NALLAWALLA

Ash Nallawalla manages natural and paid search traffic for some of Australia's largest web sites. He is an internationally acknowledged expert in search marketing and he previously operated an SEO training business. This article series is excerpted from his training notes. Ash can be contacted at ash@melbpc.org.au and he blogs at **www.netmagellan.com.**

WHAT'S NEXT?

PART 12
SEPTEMBER '09
SEO MAINTENANCE

PART II SEARCH ENGINE OPTIMISATION

SEO Tools

This month we will examine some tools that will enable you to speed up some SEO tasks.

Many experienced SEO consultants will say that they never use tools for their work. This is not true. They have to use at least one authoritative tool, such as Google Search, and possibly Yahoo! Search. Yes, the search engines are the primary tool for competitive research, reverse-engineering of the algorithms, and to make ranking checks.

In earlier articles we also covered the Google AdWords Keyword Tool at http://is.gd/KIvw and the Google Webmaster Tools at http://is.gd/KIFK. They are among the most important tools you will use.

Many web sites offer online and desktop tools to make your SEO work easier. It is easy to get into "tool overload" where you waste time on a new tool that does the same task as another. Learn to trust your own instinct and knowledge. Some online tools have not been updated in many years — and may be unreliable.

Some of the key sites with useful, valuable tools for SEO work include:

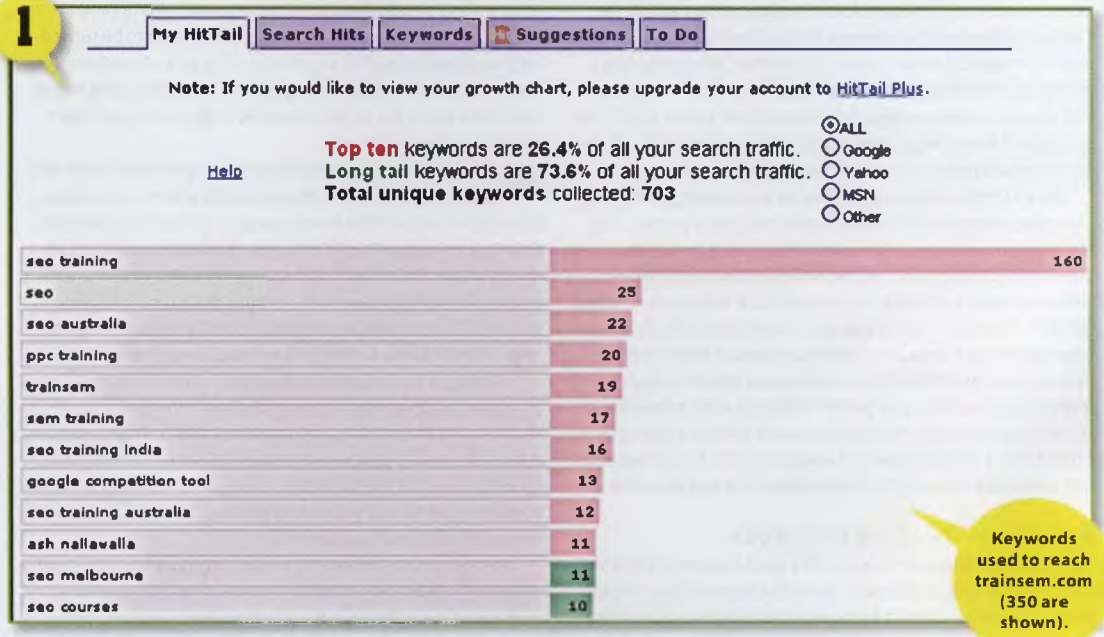
SEOMOZ

www.seomoz.org/tools

A great resource with many free features and a few paid options. I subscribe to the daily SEO blog post, as it is one of the best ways to learn from experts. The site provides several useful tools, including:

- **Linkscape** is a professional grade backlink tool that uses patented metrics to give you a measure of your backlinks. These are mozRank, mozTrust and Domain Juice. Since we can't get Google's measurements, SEOmoz has come up with its own benchmarks based on analysing millions of pages. This tells me, for example, that a link from a certain blog passes more link juice than one from another site. For those of you who buy links, this could be a great way to assess the value of a link. The detailed report requires a paid subscription and this tool alone may justify the cost. It is also available as a Firefox plug-in.
- **Trifecta Tool Set** gives you the number of sites/pages that link to you; the number of times your brand is mentioned on the web; and how much traffic you receive.

1



Keywords used to reach trainsem.com (350 are shown).

Google Analytics offers a quick overview of various measurements across your site(s).

- **Term Target** tells you how well a given page is optimised for a keyphrase.
- **Rank Tracker** enables you to check, track, and monitor your rankings at all the major search engines.
- **Juicy Link Finder** helps you to find links that have authority, such as old domains with a high PageRank that rank well for your keyphrase.
- **Backlink Analysis** tells you the anchor text used by the linking sites.

SEOBOOK

Aaron Wall operates SEObook.com, which is focused on his ebook but which also has some useful tools:

- **Keyword Suggestion Tool**. Although US-centric, this tool produces a wealth of related keyphrases and their search statistics from several sources.
- **SEO for Firefox**. This tool will display details about every result in a Google or Yahoo! search, such as PageRank, Age, types of backlinks, Delicious.com bookmarks, and a lot more.

HITTAIL

- ***www.hittail.com***

1 HitTail shows you real-time visitor and keywords information. Even a free account is quite useful. Such analysis could show if your site is coming up for unintended search terms. If they are inappropriate (they chew up bandwidth), you can reword your pages.

GOOGLE ANALYTICS

- ***www.google.com/analytics***

2 For a free service, Google Analytics (based on Urchin) is fantastic. (You have to download and place tracking code on any page you want to track with the tool.)

If you manage numerous sites (yours, or those of your customers), you first see an overview of various high-level measurements for the past four weeks compared to the four preceding weeks. You then choose one site and dive deeper.

If you update your content frequently, such as blog posts, you will see spikes when a post attracted a lot of visitors. You can then check where they came from and what keyphrase they used to find the post. For my free directory ANZdirectory.com.au, 78% of the traffic comes from search engines, 11% comes from directory listings and 8% is direct (probably my own visits).

For my blog site NetMagellan.com, I see traffic peaks when I review hardware. My all-time record was for a review of an obscure security device, followed by that of a video camera. This tells me what works and what does not. Another popular page is my resume, which I have optimised for a couple of terms. I have defined two "goals", where a different tag is placed on a "success page" – in my case one is the resume page, and the other is my non-profit activity page.

The SEO industry does not appear to have been hit by the financial crisis, so the number of resume visits has not shown any change over two years.

Some people do not like the thought of Google finding out "everything" about their business and will not use Google Analytics. For the rest of us, it is a great tool for measuring web traffic. Large companies often use an expensive alternative such as Omniture or HBX.

WEBCONFS

- ***www.webconfs.com***

WebConfs has a large collection of tools, and most of them can be installed on your own site – this gives them a nice link from your site but it also gives you some repeat traffic.

MORE ABOUT... RESEARCH & RESOURCES

You should keep up to date with SEO tools by exploring resources for SEO such as forums, conferences, events, books, blogs and links. If you have the time and programming ability, you should build and host your own SEO tools. If they perform well, they can bring you a lot of SEO traffic, which you could monetise in several ways.

You must read the most important blogs and participate in the most relevant forums. Use Google and Yahoo! Alerts for the phrase "seo tool" (in quotes), so that you will be notified of new tools.

MORE ABOUT... USING THE WRONG TOOLS

Sometimes a tool is too good to be true – submission tools tend to have features that may harm your reputation at worst and waste people's time at best. For instance, there is a social media tool that submits to "all social and bookmarking web sites" including Digg, Reddit, Del.icio.us, Propeller, StumbleUpon, Social Logs, Indianpad, Google, Technorati, Furl, Diigo, Wirefan, Bibsonomy, Blinklist, Blogmemes, Faves.com, Ask Jeeves, Simpy, Backflip, Spurl, Newsvine, Netvouz, Folkd, Blinkbits, Bmaccess, Shadows, Smarking, Sphinn, Magnolia and Yahoo!.

If you checked some of those sites you will realise that most of them are inappropriate destinations for advertising your new web site using a single set of phrases (Title, Description, etc.). Your submission will be deleted; and, possibly, your profile gets banned. This could be a problem if you used your primary email address and later wanted to submit an appropriate entry.

SEOCOMPANY

At the time of writing, Seocompany.ca offers links to no less than 136 third-party tools. They review the tools, so you will see good examples in this list. Take your time to go through this list. Some are more useful for affiliate marketing or pay-per-click advertising, but the rest will help with SEO endeavours.

DESKTOP TOOLS
AXANDRA IBP

- **www.Axandra.com/go.to/ibp9**

3 If I had to pick just one third-party desktop tool to use, Axandra Internet Business Promoter (IBP) would be my choice. It offers a suite of tools.

4 You still risk the Yahoo! ban for exceeding 1,000 queries within one day, so use it with care. Even Google will send you CAPTCHA screens unless you change the "human emulation" settings to just one about one check every 10 seconds and five seconds to fill a form. So, change your IP address before and after using it (by rebooting your ADSL or cable modem).

Its Business Edition is great for service bureaus because it enables you to monitor more than one domain name. Its cost can be recouped within days, particularly if the bureau sells the reports. I know some that give away these reports as a lead generator, and others who charge as much as $495 for an "audit report".

WORDTRACKER

- **www.wordtracker.com**

Wordtracker is often mentioned in overseas articles as a good tool for keyword research. It is, from many accounts, but only if you are optimising a web site that targets the UK and the US. Wordtracker gets its keywords from some UK ISPs and from US metacrawlers DogPile and Metacrawler.

KEYWORD DISCOVERY

- **http://is.gd/Lr7l**

Built by Aussie company Trellian, Keyword Discovery filled a gap after Overture turned off its tool and Google turned its on. It collects Australian data but the quantities seem lower than what I expect. However, no tool available to the public will ever provide reliable counts, so use them only to gauge relative keyword popularity.

OTHER IMPORTANT KNOWLEDGE
DOMAIN NAMES

- **http://ausregistry.com.au**

Domain names, eg. example.com, are only relevant for SEO purposes when they are important keyphrases for the company **and the anchor text uses this keyphrase**. Here are some examples where the money term is "SEO training". The company name in this case is "SEO Training Pty Ltd" (a fictitious name).

DOMAIN NAME	ANCHOR TEXT	VALUE FOR SEO
trainseo.com	"seo training"	Good
trainsem.com	"seo training"	Not good
seotraining.com	"seo training"	Excellent

The reason why the last domain name is excellent is that lots of directories link the business name to the URL, thus making it the anchor text. Textual references might also use the business name as the hyperlink. If this is not likely to happen, the choice of domain name is not important.

If you want to check the availability of an Australian domain name, use AusRegistry, which is the AUDA-appointed registry of .au domain names. If you use the tool at some reseller or registrar, your search might be noticed by an employee who may buy it, thinking that it is a good domain name. I have met a few people who swear this happened to them. I think the problem is that some resellers have out-of-date registry data, and a domain name they think is available was sold some time ago.

IP ADDRESSES

- **www.myipneighbors.com**
- **www.domaintools.com**

An IP address looks like this: 203.12.123.45 (none of the numbers is greater than 255). Each country is given an allocation of IP addresses to allocate to ISPs, companies and individuals. Some of them are given to web hosting companies. Shared hosting usually involves one IP address being shared by many web sites, but a shared host customer can sometimes buy a unique IP address for self-protection.

For the SEO this knowledge is useful for investigating competitors who might own several web sites and place them on the same shared server. You can also look for a large number of undesirable sites, eg. phishing, adult, etc. on the same IP address, which might give a clue why a web site ranking has dived for no obvious reason.

You can use MyIPNeighbors.com or Live Search's IP operator to get "reverse IP" information (covered later).

Such tools monitor new domain name allocations and ping them from time to time to see if a web site has been set up. The IP address is noted and the domain name is associated with it and any other domains noted at that address.

If your competitor is also on the same shared IP address as your site (or client's site), one of you may lose ranking for similar terms. This is a highly debated theory and I have not seen any evidence of it. However, a noted Canadian SEO mentions in his blog that he had a client with two different sites (example keyphrases used below) on the same shared server:

- New York lawyer
- Lawyer resources

He thought that these were different topics, but Google saw a common theme of "lawyer" and dropped rankings in both sites. After he moved one site to another host and changed the whois ownership, both sites rose in the SERPs. Google strongly denies that using a shared IP address is bad for ranking.

Next month we look at SEO maintenance.

DISCUSS ONLINE...

Have you registered at the *APC* Forums at *apcmag.com*? As we get into the more technical aspects of SEO, you might notice that space limitations don't allow certain topics to be covered in depth. If you have any question about this series, or about SEO in general, Ash is monitoring the SEO forum and will do his best to answer your questions. Other readers are also encouraged to help each other.

114 downtime

HIGH-PERFORMANCE PLAYTIME

SONY DPF-E72 PHOTO FRAME

01

Digital photo frames all seem to have one thing in common: not all but most of them seem to be black. Sony has bucked that trend with the DPF-E72 7in LCD screen. It gives you not one but three choices of colours in the form of interchangeable bezels that you can swap around to suit your decor or mood.

With 128MB storage capacity, a remote control, as well as the ability to handle MS, SD, xD and MMC memory cards, the E72 has everything you would expect in a digital photo frame. An Automatic Orientation Sensor allows you to display your images either horizontally or vertically, adding another facet of versatility. ***CZ***

CONTACT	Sony Australia
ONLINE	www.sony.com.au
PRICE	$199

LOWEPRO CAMERA POUCHES

02

Two new designs of pouches from Lowepro offer different solutions to the same old problem: keeping your camera protected. Designed for ease of access, Lowepro's D-Wrap (in red) includes a built-in plate with threaded key that attaches to the tripod port of a point-and-shoot camera. The stretchy and abrasion-resistant neoprene cover wraps around the camera body and shuts securely with a velcro closure that can be ripped open quickly. Alternatively, Lowepro's Hipshot is reminiscent of a rock climber's chalk bag with a carabiner so you can hook it onto your belt loops for easy access, hence the name. Both are strong, sturdy and good value. ***CZ***

CONTACT	Lowepro
ONLINE	www.lowepro.com.au
PRICE	$15.95 and $17.95

ILUV TPU CASES FOR BLACKBERRY

03

It's only fair that BlackBerry owners get to pimp up their phones like their iPhone-using counterparts. ILuv has released a range of custom-fitted soft and hard cases that not only serve the role of protecting your beloved BlackBerry from moisture, dust and scratches, but also give the owners a sense of individuality. Made from thermoplastic polyurethane, the cases protect your device without adding extra bulk and weight. A stick-on screen protector is also supplied to make sure that the front of your BlackBerry stays looking shiny and new. So now there's no excuse to have a dull-looking phone for anybody, no matter what you use. ***CZ***

CONTACT	iLuv
ONLINE	www.iworld.com.au
PRICE	$39.95

INCA HD MEDIA PLAYER

04

Turn your 50in plasma TV into the world's biggest digital photo frame! The Inca HD Media Player is a compact, slim and easy-to-use device that allows you to view photos, enjoy video clips and music on your HDTV in full 1080p resolution. Just insert your memory card, USB flash drive or USB portable hard drive, and you can show high-resolution images, video clips, and play MP3 music files on your HDTV.

The Inca HD Media Player allows you to select from 16 transition effects, change the playback sequence, watch home video and even add music. This is a cheap and more comfortable alternative to squeezing the relatives around your PC to watch a slideshow. ***CZ***

CONTACT	adeal
ONLINE	www.adeal.com.au
PRICE	$199

05 LOGITECH WIRELESS GUITAR

Anyone who has played Guitar Hero knows how the guitars supplied with the game can, er... accidentally get broken in the heat of the moment. The Logitech Wireless Guitar is a strong replacement that features authentic materials including a wood neck, rosewood fingerboard as well as metal frets and whammy bar! Apart from being a little light, this feels like a real guitar. The buttons on the neck have rubber domes installed to make them near silent, so the rapid clicking of your fingers doesn't drown out your guitar playing. 2.4GHz wireless technology lets you rock away at up to 30 feet from the console. Party on, dudes! ***CZ***

CONTACT	Logitech
ONLINE	www.logitech.com.au
PRICE	$199.95

06 SUCK UK GLOW BRICKS

Similar in concept to the Sun Jars, these unwired glass cubes make a cool talking point or nightlight as they light up an area without electricity or batteries. Photoluminescent pigment trapped inside a regular light bulb sealed in a solid block of acryllic resin lights up when the sun goes down. The mysterious optical effect is caused by light diffracting in the tiny space between the glass of the light bulb and the resin. In a darkened room or at night, the Glow Brick comes to life with a tranquil and subtle glow that emanates from the pigment inside the bulb.They are available in two colours and look impressively suave in any surroundings. ***CZ***

CONTACT	Until
ONLINE	www.until.com.au
PRICE	$60 each

07 RUBIK'S CUBE TITANIUM

The Rubik's Cube is an icon recognized around the world for its distinctive design and frustratingly complex puzzle. Now the new spin on this '80s craze that sold over 350 million units has arrived in the form of the electronic Rubik's Titanium Edition. Suitable for all ages, the special Titanium Edition updates the cube with new features to improve game-play such as six mini-games in which users can test their speed and intelligence, save their highest scores and track their progress! A new-look light-up body is an attention-grabber that will make anybody look cool. I wonder how long it will take Lawrence Leung to crack this? ***CZ***

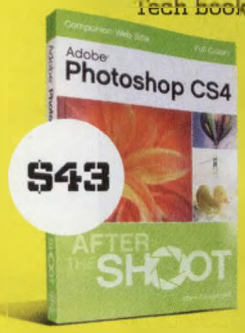
CONTACT	Toys 'R' Us
ONLINE	www.toysrus.com.au
PRICE	$34.95

08 MICROSOFT LIFECAM VX 2000

If you're not uploading video to YouTube or at least Skyping your mates overseas, then it's about time you got yourself a webcam. A cheap model that's new to the market is the LifeCam VX-2000, which features VGA video and 1.3MP still photography and a host of special features for under $60. The image quality is great, as the VX-2000 auto-adjusts for low-light conditions to create bright pictures in a variety of scenarios. 3D effects such as facial distortion or even animated accessories are a fun distraction for a little while, but a major boon is the ability to record video messages that are high quality but compact enough to email to anyone and everyone. ***CZ***

CONTACT	Microsoft
ONLINE	www.microsoft.com
PRICE	$59.95

Inprint
Tech books



$43

PHOTOSHOP CS4 AFTER THE SHOOT
www.au.wiley.com.au

If you're a photographer on the go and want the ability to edit your photos, then this book is for you. Wherever you find yourself out on location, you'll find exactly what you need in this full-colour pocket-sized guide that fits easily into your camera bag and walks you through the workflow, editing, and organizing tasks found in CS4.

$43

INTERNET SIMPLIFIED
www.au.wiley.com.au

Internet Simplified gives entry-level computer users information on everything from social networking sites and blogging to using YouTube, email, auction sites, and instructions on how to safeguard against viruses and SPAM. Full-colour screen shots and numbered, step-by-step instructions guide readers through the intricacies of navigating the web in a friendly, approachable way.

LiveScribe Pulse SmartPen

This pen really takes notes. It's a voice recorder in a pen that remembers what you write and can playback what was being said when you wrote it.

Anyone who has ever been in a situation where note taking is required will appreciate everything that the LiveScribe can do. Using dotted paper technology that allows the pen to track its own motion, the SmartPen gives the user the ability to record audio from a meeting, lecture or interview whilst taking notes. Sounds straight-forward so far right? The impressive part is that when you review your notes by touching the pen to any word, symbol or marking made on the page, the SmartPen will play the audio that was recorded at the exact moment that text was written. So if a lecturer says something important, all you need to do is write a note or even just make a squiggle on the page and the SmartPen will bookmark and play back what was said the exact moment you made that mark. And you don't have to worry about a meeting dragging on for hours, as 1GB equals 100 hours worth of recording time.

For those who need to solve the odd maths problem, the SmartPen also acts as a calculator, just write out a maths problem on the page and the pen will tell you the answer. Simple!

The LiveScribe really comes into its own when you plug it into a USB port on a Mac or PC. All your pages are instantly uploaded where they can be viewed as visual interactive documents in which your hand-written text can be searched for keywords, your notes shared with others online and where they can even be made into PDFs or Flash movies.

A really cool use for the pen is the ability to draw a sketch of something and make verbal notes or instructions while you do it. When uploaded to a PC, the sketch will be drawn live on screen with your voice (or audio notes) overlaying the picture as it is redrawn in real time.

Translation software allows you to write a word in English on your notepad, which the SmartPen will then say aloud in the language of your choice. This and other features will be available through an online app store, which will be online by the end of the year.

The LiveScribe SmartPen is available at OfficeWorks for $249 for a 1GB model or $329 for 2GB.

Christopher Zammit

TAKE NOTE
The LiveScribe is essentially a PC in a pen that has a camera, microphone, LCD display and a miniature computer. Oh, and ink.

.: CONTACT LiveScribe
.: ONLINE www.livescribe.com
.: PRICE $249 for 1GB model

$249

9/10

50 WORDS
... on what you know.

We want to know what you know. Well... at least something cool you know. Keep it clean, and keep it to less than 50 words and you never know, you might win one of two prize packs. This month we have two 'Knowing' Packs from Icon films which feature Blu-ray copies of *Apocalypto* and *30 Days of Night* as well as a Limited Edition Steel Book copy of *Knowing* which is available on DVD & Blu-ray from July 29. The pack also includes limited edition *Knowing* merchandise in the form of a Knowing branded torch and satchel bag.

Entries close 16th August. Winners will be contacted by email.

Email your entry to:
downtime@acpmagazines.com.au

E-READERS

Compact and light, they are able to hold hundreds of books in a third of the space of a single novel. They won't bend, they won't fray and they can be used again and again. No contest, really.

What's hot & not

TECHNOLOGY THERMOMETER

PRINTED BOOKS

They're big, they're heavy, they're a fire hazard! It seems antiquated to cut down trees in order to display words when each and every page of a book can be displayed digitally on a screen.

BLU-RAY PICKS OF THE MONTH

GRAN TORINO

Clint Eastwood shows why he is a cinema legend with his amazing performance as Walt Kowalski, a disgruntled Korean War veteran who finds himself living next-door to an Asian family that he can't help but grow to like. With his wife recently deceased, he begins to see his neighbours as a surrogate family whom he struggles to protect against a group of young gang members who have taken over the neighbourhood. Eastwood has threaded the film with bouts of humour and tension, as the ageing Walt Kowalski digs himself deeper into trouble. *Gran Torino* is a disturbing, but touching film. ***CZ***

CONTACT Roadshow Pictures
ONLINE www.village.com.au
PRICE $42.95

KNOWING

Knowing is one of those films that you're better off seeing with no knowledge of what it is about. The story morphs from being an *X-Files*-type mystery to something completely different (and great) in a subtle and unexpected way. Shot in Melbourne, this almost completely Australian-made film is a strong piece of cinema. A great tension-laden plot paired with a solid performance from Nicolas Cage and amazing Australian special effects makes *Knowing* one of the best films of this genre for years. As good as the body of this film is, the ending is even better. *Knowing* is one film that will stay with you for days. ***CZ***

CONTACT Icon Pictures
ONLINE www.iconmovies.com.au
PRICE $42.95

ZACK AND MIRI MAKE A PORNO

The latest film by Kevin Smith (*Clerks*), sees the director delve deeper into the realm of crudity. Zack (Seth Rogan) and Miri (Elizabeth Banks) are two desperately broke housemates who decide that making a porn film would be a good way to clear their debt. With the help of an ensemble cast of oddballs, including Jason Mewes of *Jay and Silent Bob* fame, the duo soon find that it isn't as easy as they first thought. With as many gross-out scenes as there are laughs (there are a lot of both), this is one of the most original comedies of recent times. You'll never look at corn kernels the same way again. ***CZ***

CONTACT Roadshow Pictures
ONLINE www.village.com.au
PRICE $42.95

Cool-er e-reader

A good quality e-reader without all the bells and whistles

Are the days of picking up a paperback numbered? Yes, if the makers of the Cool-er e-reader have any say about it. Built as a lower-priced challenger to the market-leading Kindle 2, the Cool-er e-reader uses a 6in E InkR display to simulate the appearance (although not the feel) of a paperback novel. It uses Adobe DRM/ePub formats, not a proprietary format like the Kindle, so you can buy books from a larger selection of online stores including their own store at *www.coolerbooks.com*. This is a bare-bones e-reader that has intentionally left out things like wireless connectivity, a touchscreen, external speakers, and sidelighting in order to keep the unit cost below US$250. The Cool-er is designed to be a low power consumer as it only draws power from its Lithium-Polymer battery for "page turns". This means that a single charge lasts for 8,000 pages and, unlike a book, the electronic display allows you to change the text size to suit you!

1GB of storage allows for hundreds of books to be kept within the Cool-er without having to install and delete a book every time you want to start a new one. So, as having an iPod is like having a record collection in your pocket, the Cool-er is the same as taking a library with you wherever you go.

Christopher Zammit

CONTACT Cool Readers
ONLINE www.coolreaders.com
PRICE US$249

Quikfix
Released soon

RHYTHM HEAVEN

Rhythm games are a simple proposition; it's all, of course, about timing. Which makes them only fun if the mechanics are spot on — and here, Nintendo has totally nailed it with Rhythm Heaven. Charming presentation, laugh-out-loud zaniness, manic mini games and exacting difficulty levels. Don't mistake this as a simple kids game — it's too fun (and funny) for that. Available for $49.95 on the Nintendo DS.

GODFATHER II

Based on the now ridiculously old film of the same name, Godfather II is an open-world game that lets the player be the Don (well. . . a mini-Don). There's plenty of gunplay, driving and a much-improved hand-to-hand combat system (compared to the first game). It features strategy elements where players need to 'acquire' territory while expanding the family business. Godfather II is out now for the PS3, Xbox 360 and the PC.

Nintendo DSiWare

Peter Dockrill is, once again, a kid in a candy store.

One of the most intriguing features of the new Nintendo DSi is the promise of download content. Nintendo, with its genre-defining back catalogue of console titles, seemed to be in a great position to deliver direct handheld ports of some of its classic games, much like it has on the Wii with the Virtual Console. So where are the retro titles? Well, they haven't turned up yet; instead, what's available currently is a selection of budget-priced new releases. They tend towards the puzzle-game side of things, which seems a little limiting, but the polish is certainly there, and at these prices (from free to $12), who's complaining? Picopict, Aquite and Code are all semi-innovative variations on moving-block puzzlers, with Aquite's undersea diving theme being our pick of the bunch. Pyoro is a leave-your-brain-at-home arcade shooter, while WarioWare: Snapped! is a fascinating (if frustrating) tech demo, which makes the most of the DSi's camera (but with little playability). Meanwhile, Real Football 2009 is a full port of an older DS game and at 800 points ($12) represents the most full-value item in the range. All up, it's a promising start for DSiWare, and hopefully vintage titles are coming soon.

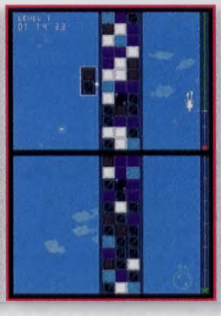
AVAILABLE PLATFORMS: PC-DVD, Wii, PS3, PSP, XBOX 360, NINTENDO DS

CONTACT Nintendo
ONLINE www.nintendo.com.au
PRICE Varies

✔ Promising early titles; good value.

✖ Overemphasis on puzzle games; where's the retro content?

VERDICT ★★★★☆



X-Men Origins: Wolverine

Troy Coleman refrains from saying 'SNIKT' or 'bub' in his review. . . wait, dammit!

Developers Raven Software (Quake 4, Singularity, Wolfenstein) have given us a movie spin-off that, against all odds, doesn't suck. Players take on the role of the ill-tempered, cigar-smoking powder-keg that is Wolverine (as voiced by Hugh Jackman) in this action button-masher whose plot is for the most part based around the film.

Gameplay is a non-stop checkpoint-based-bloodbath as, armed with Wolverine's retractable foot-long claws and mutant-healing power, you tear apart anything standing in the way. Resistance comes as an endless flood of fodder (aka. generic soldiers) as well as some familiar faces from the long-running X-Men/Wolverine franchise. The controls are tight and the learning curve is a wading pool, with the God of War-inspired combat based solely around combinations of only three buttons (light attack, heavy attack and grab).

Visually, Wolverine is a mixed bag. Character modelling and animations look great, but barrelling down the same endless hallways can start to feel repetitive. We won't even speak of the mysterious case of the disappearing/reappearing singlet! But hey, the game stands proudly and unashamedly tall in the button-mash genre for two very good reasons: a) it's a great game, and b) who's gonna argue with Wolverine?

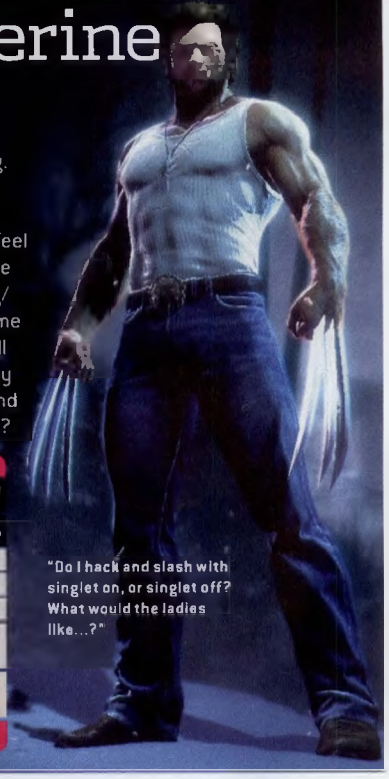
AVAILABLE PLATFORMS: PC-DVD, Wii, PS3, PSP, XBOX 360, NINTENDO DS

CONTACT Activision
ONLINE www.uncaged.com/
PRICE $99.95

✔ Excellent button-mashing fun; Wolverine how it *should* be.

✖ Can feel repetitive; some odd graphical glitches.

VERDICT ★★★★☆



"Do I hack and slash with singlet on, or singlet off? What would the ladies like...?"

"Take this, Karma judgement system! How many points do I get for frying the city?"

inFAMOUS

Troy Coleman uses his mighty powers to heal you; you shall love and worship him, and then he shall kill you.

Sandbox (open world) games are gaining in popularity but in my mind are a bit of an oddity. There're high levels of perceived value and overinflated expectations that are rarely met. On one hand they can be fulfilling epics like GTA, where the amount of content is exhausting and the game world is so richly decorated that you can literally smell the stink of the city streets. On the other they can be barren wastelands where the most (read: only) fun is had by avoiding the content at all cost and simply running around — like Crackdown. And so, with mixed emotions, I shakily loaded the PS3 exclusive inFAMOUS into the slot.

Set in the fictional Empire City, players take on the role of Cole McGrath, a bike courier who miraculously survives a blast, caused by a device called the Ray Sphere, to then discover he's developed lightning-based super powers. The city is put into quarantine and, during an attempt to escape, Cole is persuaded by Moya, an FBI agent, to scour the city and do whatever it takes to recover the device.

Navigating the city is crazy fun, and the mission-based objectives take you from rooftop to rooftop zapping, sapping and generally exploderating things along the way. Climbing around buildings and jumping from dizzying heights feels natural and is literally vertigo-inducing. The main story-arc is engrossing and revolves around solving problems such as rescuing hostages, killing a bunch of bad guys or restoring power to certain grids of the city. There are also quite a number of side missions that are completely optional — but highly recommended – that'll reclaim territory from the bad guys as well as build up a nice bank of experience points to buy new powers.

One disappointment is the lack of any online/multi/co-op play, which, in my mind, would have been an excellent addition to what is already a console-defining title and a must-play. APC

AVAILABLE PLATFORMS: ~~PC-DVD~~ ~~Wii~~ PS3 ~~PS2~~ ~~XBOX 360~~ ~~DS~~

CONTACT Sony
ONLINE infamousthegame.com/
PRICE $109.95

✔ Great character development; compelling plot and gameplay.

✖ More enemy variation would have been nice; no multiplayer.

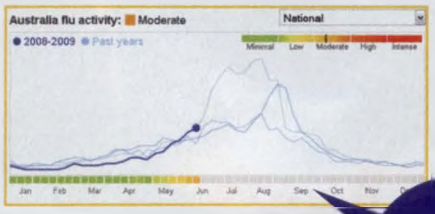
VERDICT ★★★★★

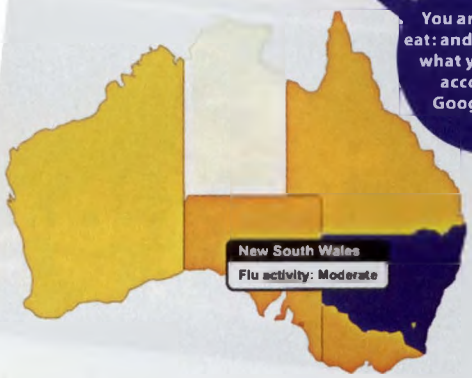
Indepth
Good versus Evil

Throughout the course of the game, player actions will be subject to a karma judgment system that somewhat influences the direction the story takes and heavily influences the powers (and potency) players can unlock, as well as how they are perceived by the general population of the city. Deeds, good or bad, are rewarded with experience points that can be used to purchase the next tier of power or general mitigation resistance. It's generally a good idea to commit yourself wholeheartedly to one alignment and do everything you can to fulfil your ultimate good/evil destiny. The downside of flip-flopping could be that once the end-game is reached, Cole's powers will still be at a rudimentary level.

chipchat

BY PETER DOCKRILL





You are what you eat: and now, you are what you browse, according to Google's data.

Flu are you?

Well, they're two of the most ongoing, thought-provoking and attention-grabbing stories in the news this year, so we guess it was inevitable that they'd hook up and join forces at some point. We're talking of course about a) flu (Swine or otherwise) and b) Google, who have united in the form of Google Flu Trends, a flu-tracking and charting site that "provides up-to-date estimates of flu activity in Australia, New Zealand, and the United States based on aggregated search queries." Uh, excuse me? How can search queries themselves provide an account of actual contagion levels?

Well, the answer is interesting, and it just goes to show how knowledge *is* power, especially when considering the sheer *volume* of pure, aggregated information that Google now wields: "Google researchers have found a close relationship between how many people search for flu-related topics and how many people actually have flu symptoms." (That's the simple answer; more info on how it all works is available at **www.google.org/flutrends/intl/en_au/**.)

So, on the one hand, this is definitely good news: the world now has another free and easily accessible online resource with which to track, chart (and ultimately combat) disease activity. That's great (as long as it is indeed an accurate gauge).

But, to this writer, the advent of Google Flu Trends demonstrates another, far subtler point, and one that recalls that old cautionary edict of Nietzsche's: "And if you gaze long into the abyss, the abyss will also gaze into you."

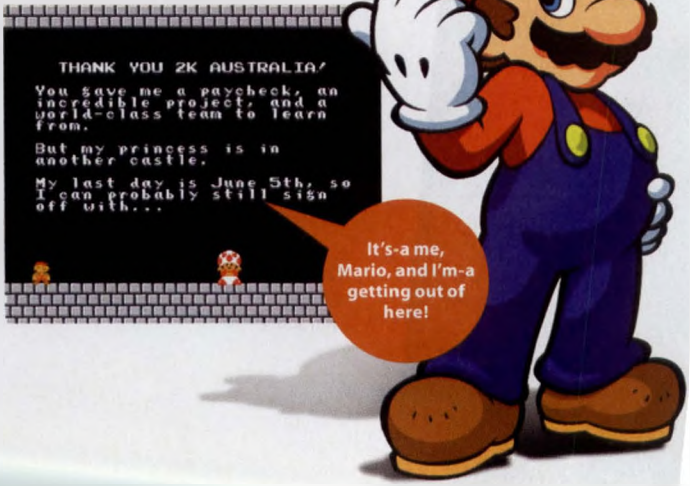
Replace XP's green fields with Dharma's dictatorial designs!

The Dharma Desktop

Admirers of last month's *Star Trek*-themed desktop wallpaper effort (*APC* July, page 118) may also find something to like in this month's entry: The Dharma Desktop. While not perhaps quite as recognisable to most as the Enterprise-esque facade, fans of the cult (and formerly hit) TV show *Lost* will instantly identify the proto-hippy-utopian-sci-fi iconography of the island's would-be resident caretakers (or are they?). As noted by **Lifehacker.com**, this snazzy little effort also incorporates system stats into the background. Nice one. More at **http://tinyurl.com/lorkhl**.

Game over, but thanks!

There's nothing quite like leaving a job: walking into your boss's office, slamming your resignation notice down on the desk and (at long last) finally telling him (or her) what you think of her (or him). Really letting them have it! Of course, you could alternatively do as games developer Jarrard Woods did: upon quitting his role with games company 2K Australia, Woods served his notice via a computer game (fondly modelled on the venerable Super Mario Bros.), which thanked his employer for all the good times and explained his reasons for leaving ("But my princess is in another castle.") Aww. You can check out the game (and others) on his site at **www.farbs.org** and read more here (**http://tinyurl.com/c8wbbt**). APC


THANK YOU 2K AUSTRALIA!
You gave me a paycheck, an incredible project, and a world-class team to learn from.
But my princess is in another castle.
My last day is June 5th, so I can probably still sign off with...
It's-a me, Mario, and I'm-a getting out of here!

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- 802.11n with WPA-PSK/WPA2-PSK
- Wi-Fi Protected Setup (WPS)
- Voice over IP compliant with Sip standard
- Make phone calls via Internet as well as PSTN fixed-line
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- One FXO port for voice calls via PSTN fixed-line
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- Grow Your Capacity

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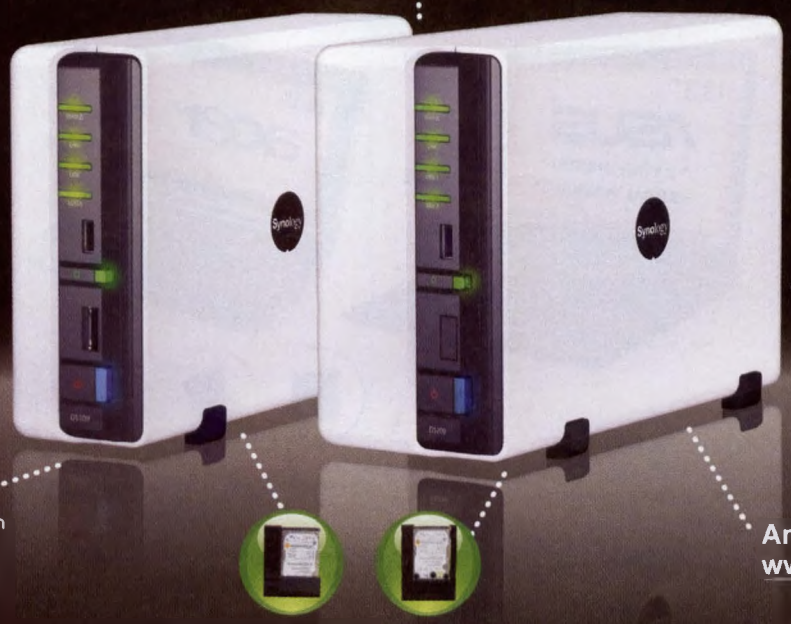

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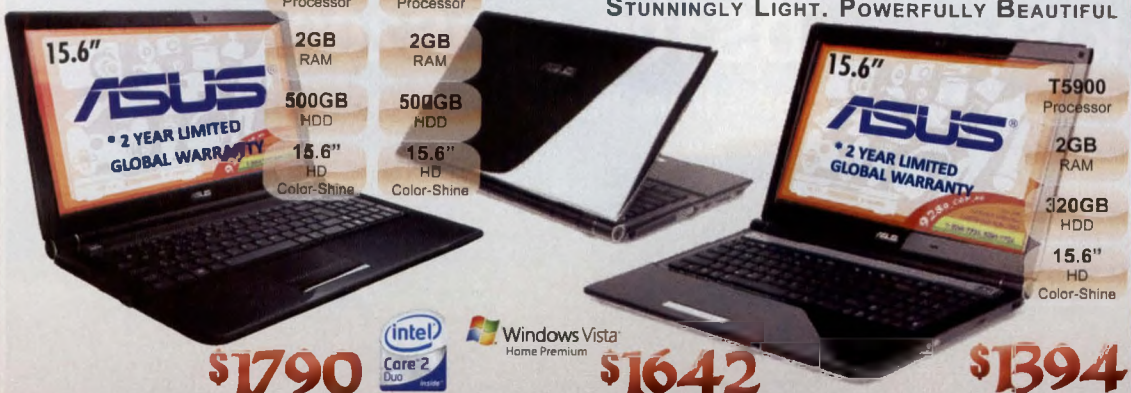

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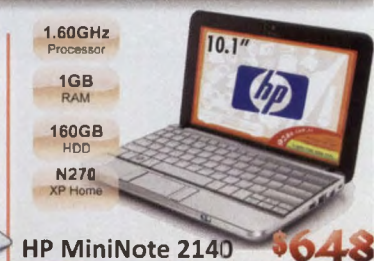

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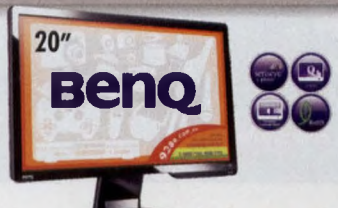

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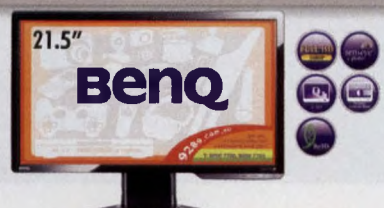

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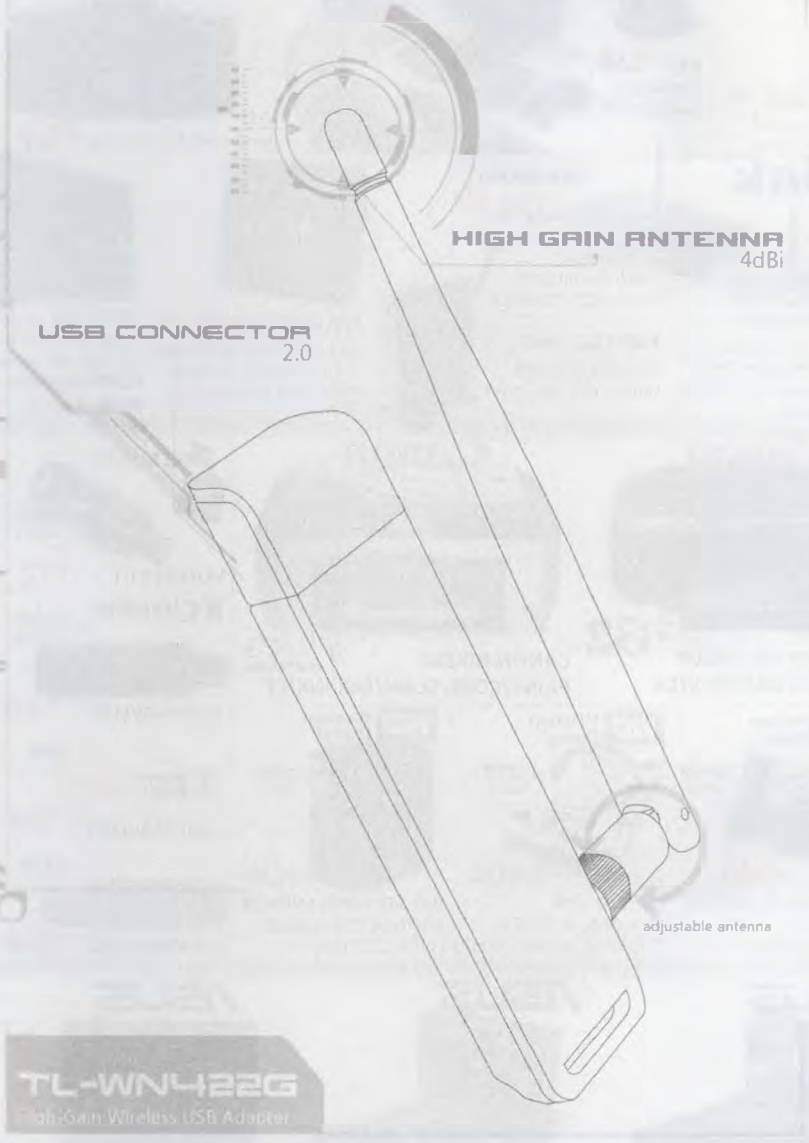

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I / O ports	2 x USB 2.0 / 1 x eSATA / 1 x Audio Set (AC'97/HD)
Dimensions (mm)	514 mm (H) x 205 mm (W) x 590 mm (D)

P183

Motherboard Support	Up to Standard ATX
Expansion Slots	7
Drive Bays	4 x 5.25" Ext, 1 x 3.5" Ext, 6 x 3.5" Int
Cooling System	1 rear 120 mm x 25 mm TriCool™ fan 1 top 120 mm x 25 mm TriCool™ fan
I / O ports	2 x USB 2.0 / 1 x eSATA / 1 x Audio Set (AC'97/HD)
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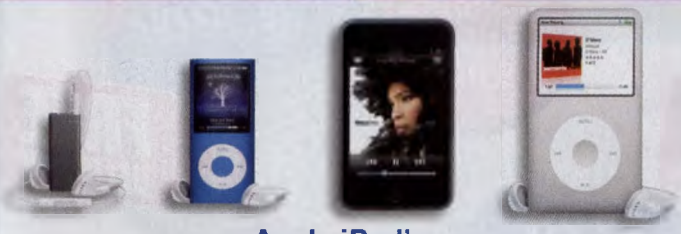

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Take your cardio and strength training to the next level

Rubber feet on base keep unit from sliding during use.

WebCode: EVE0002

MSI Wind U100+

Breeze through your work

- Intel Atom N280 1.66GHz
- 1GB DDR2 RAM
- 160GB SATA HDD
- Windows XP Home

WebCode: Black - MSI0010
WebCode: White - MSI0011
WebCode: Red - MSI0012

ASUS EeePC 1000HE

It's U.. It's me.. It's Eee PC.

- Intel Atom N280 1.66GHz
- 1GB DDR2 RAM
- 160GB HDD
- Windows XP Home

WebCode: White - ASU1208
WebCode: Black - ASU1207

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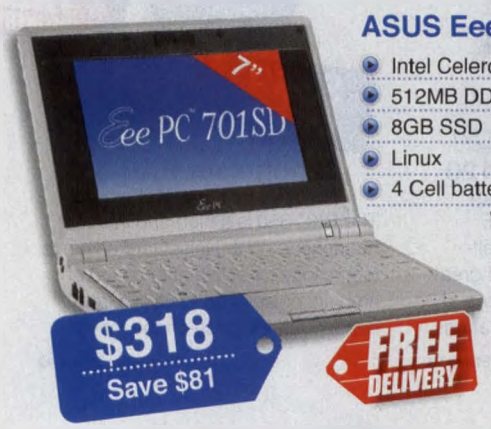

ASUS EeePC 701SD

- Intel Celeron M 353 900MHz
- 512MB DDR2 RAM
- 8GB SSD
- Linux
- 4 Cell battery

WebCode: White - ASU1122

Acer Aspire One - Black

- Intel Atom N270 1.6GHz
- 1GB DDR2 RAM
- 160GB SATA HDD
- Windows XP Home
- 3 Cell battery

WebCode: ACE1002

ASUS EeePC 1000HA

- Intel Atom N270 1.66GHz
- 1GB DDR2 RAM
- 160GB HDD
- Windows XP Home
- 6 Cell battery

WebCode: Black - ASU1182
WebCode: White - ASU1183

Lenovo S10e IdeaPad - 6 Cell

- Intel Atom N270 1.6GHz
- 1GB DDR2 RAM
- 160GB HDD
- Windows XP Home
- 6 Cell battery

WebCode - Black: LNB9511

MSI VR602 Home Notebook

- Intel Dual Core T1600 1.66GHz
- 2GB DDR2 RAM
- 160GB SATA HDD
- Wireless-N & 1.3MP WebCam
- Windows Vista Home Premium

WebCode: MSI0020

Compaq CQ61-126Tu

- Intel Celeron 900 2.2GHz
- 2GB DDR2 RAM
- 250GB SATA HDD
- 5-in-1 Card Reader
- Windows Vista Basic

WebCode: COP0126

Lenovo SL500 Notebook

- Intel Core 2 Duo T5870 2.0GHz
- 1GB DDR2 RAM
- 160GB SATA HDD
- Windows XP Pro
- Upgrade to Vista Business Inc

WebCode: LEN0203

Compaq CQ61-109Tx

- Intel Pentium T4200 2.0GHz
- 2GB DDR2 RAM
- 320GB SATA HDD
- nVidia GeForce G 105M
- 512MB Windows Vista Home

WebCode: COP0109

WebCode: MSI0014

MSI Wind Top AE1900 All-in-One PC – Touch Screen

- Intel Atom N230 1.6GHz
- 1GB DDR2 RAM
- 160GB SATA Hard Drive
- Super Multi DVD-RW
- Wireless-N & Gigabit LAN
- 1.3MP Webcam
- Keyboard & Mouse included
- Windows XP Home

MSI Wind Neton AP1900 All-in-One PC

MSI Neton All-In-One PC (Black)	MSI0013	$769
MSI Neton All-In-One PC (White)	MSI8500	$769

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MSI X320 Slim Notebook

- Intel Atom Z530 1.60GHz
- 2GB DDR2 RAM
- 320GB SATA HDD
- Wireless-N & 2.0MP WebCam
- Windows Vista Home Premium

WebCodes: White - MSI0016, Black - MSI0015

HP Pavilion Dv6-1159Tx

- Intel Core 2 Duo P7450 2.13GHz
- 2GB DDR2 RAM
- 250GB SATA HDD
- HDMI / Card Reader / Webcam
- Windows Vista Home Premium

WebCode: HPR1159

BenQ E2200HD 22" Full HD Monitor

- 2ms Response Time
- 1920x1080 Resolution
- 1000:1 Constrast Ratio
- 300 cd/m2 Brightness

WebCode: BEN1322

BenQ G2412HD 24" Full HD Monitor

- 5ms Response Time
- 1920x1080 Resolution
- 1000:1 Constrast Ratio
- 300 cd/m2 Brightness

WebCode: BEN1225

Lenovo T400 Notebook

- Intel Core 2 Duo P8400 2.26GHz
- 2GB DDR2 RAM
- 160GB SATA HDD
- Windows Vista Business
- 3 Year Warranty

WebCode: IBT7220

MSI GX620 Gaming Notebook

- Intel Core 2 Duo P8600 2.4GHz
- 4GB DDR2 RAM
- 320GB SATA HDD
- nVidia GF9600 GPU 512MB
- Windows Vista Home Premium

WebCode: MSI8007

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Cyber Snipa Warboard

104 keys of pure skill.....

- 10 x Macro Programmable Keys
- 17 replaceable custom combat keys.
- Armour Plating Design

WebCode: ANY0795

Cyber Snipa Sonar 5.1 Headset

In-game audio, like never before

- Winner of 16 Awards Worldwide
- 3 Speakers and 1 Subwoofer in each cup

WebCode: ANY2011

Cyber Snipa Stinger Gaming Mouse

The mouse with a 1ms response time

- 4 Different DPI settings 400-3200DPI
- 9 Buttons inc. 6 Macro programmable
- 7 x replaceable weights for precision

WebCode: ANY2014

Cyber Snipa Spotter Webcam

Custom designed for versatility.

- 640 x 480 Resolution @ 30 fps
- 7x-18x times detachable zoom lens
- Tripod included

WebCode: ANY0802

Microsoft Arc Mouse

Comfort, Style, elegance, all in one.

- 2.4GHZ – up to 10m Wireless range
- Folds for Portability
- Comfort for either hand

WebCode: MST8519

Microsoft Bluetooth Notebook Mouse 5000

Wireless connection to your Bluetooth PC

- More responsive, more precise, and smoother tracking
- Battery light indicator

WebCode: MST8245

Microsoft Wireless Media Desktop 1000

Simple, yet versatile.

Sit back and enjoy fast, easy access to all your favorite digital pictures, music, videos, and more with this sleek, ultra-thin quiet touch desktop keyboard & Mouse.

WebCode: MST8491

Microsoft LifeCam NX-3000

Ideal for notebooks

- 640 x 480 @ 30 fps
- High Definition 1.3 MP still photos
- Built-in microphone

WebCode: MST8476

Accessorise your PC

Verbatim Rapier V1 Gaming Mouse

The ultimate gaming mouse

- 9 Buttons – 7 macro enabled
- 7 Dpi settings (400-3200dpi)
- 7 x Removable 4.5 gram weights
- "Triple Click" hot key

WebCode: VBM9560

Logitech Cordless Desktop EX 90

Cost effective desktop solution

Make your desktop work more smoothly by allowing you to use your keyboard and mouse with complete freedom.

WebCode: LOG3603

Logitech V470 Cordless Laser Bluetooth

The perfect laptop companion!

- Bluetooth connectivity
- Small, sleek and comfortable.
- Up to 9m wireless distance.

WebCode: LOG3662

Logitech QuickCam Pro 9000

Crystal clear images and a stylish design

- Up to 8MP images via interpolation
- Automatic face tracking technology
- Skype compatible

WebCode: LOG3650

Wacom Intuos4 6x9

The finest pen tablet experience ever created by Wacom. Designed for professionals.

Discover the tool used by professionals to turn their ideas into reality. New features inspired by your feedback,

WebCode: WAC6400

Wacom Cintiq 12WX

The tablet that's a screen

Easily rotate your display when working flat on your desktop to find the right position for your hand.

WebCode: WAC9977

Targus Universal Notebook Docking Station with Digital Audio

One touch USB connection instantly

- Creates a desktop environment
- Add analog and digital audio, Ethernet, serial, parallel, PS/2 and USB ports to your notebook

WebCode: TAR9935

Logitech 2.4GHz Cordless Presenter

Move around an auditorium with confidence

Effectively manage your time during presentations with a built-in and programmable LCD timer.

WebCode: LOG3495

Another paper jam? Time for a new printer

Samsung CLP-610ND Colour Laser

Efficient and sharp detail

- 20ppm Colour
- 2400x600 DPI printing
- Built-in Duplexer
- USB, Ethernet
- Low running costs

BEST SELLER

$498 Save $301

WebCode: SAM0610

5K Magenta	SAM6363	$223
5K Yellow	SAM6364	$223
5K Black	SAM6361	$168
5K Cyan	SAM6362	$223

BONUS $50 Home or Office Bundle

$99 Save $30

Canon PIXMA MX320 Inkjet Multifunction

Print / Scan / Copy / Fax

- 7ppm Colour
- 4800x1200 DPI
- USB 2.0
- Windows Vista / XP, Mac OSX

WebCode: CAN1320

Black	CNN0037	$29
Colour Low	CNN0035	$28
Colour High	CNN0036	$42

$399 Save $140

Samsung SCX-4828FN Mono Multifunction

Ideal for all your business needs

- Print, Scan, Copy, Fax
- 28ppm Mono
- Built-in Duplexer
- USB, Ethernet

WebCode: SAM4828

SCX-4824FN (SAM4824) **$349**

5K Black	SAM6572	$150

$789 Save $40

Samsung CLX-6210FX Colour Multifunction

Cost effective colour printing

- 20 ppm colour & mono
- Duplex / Copy / Scan / Print / Fax
- USB or Ethernet connection
- 1 Year onsite warranty

WebCode: SAM6210

5K Black	SAM6361	$168
5K Cyan	SAM6362	$223
5K Magenta	SAM6363	$223
5K Yellow	SAM6364	$223

$1969 Save $730

Samsung SCX-5835FN Mono Multifunction

Ultimate SMB Document Management MFD

- Print, Scan, Copy, Fax
- 33ppm Mono with Duplex
- Large colour touch screen
- 80GB Hard drive
- Easy to scan to email and network
- USB, Ethernet

WebCode: SAM5835

4K Black	SAM2081	$133
10K Black	SAM2082	$269

$139 Save $30

Canon PIXMA iP4600 Inkjet Printer

Vibrant photos & documents at home

- Up to 21ppm Colour
- 9600x2400 DPI
- CD & DVD Printing
- USB 2.0

WebCode: CNN0009

Black	CAN7000	$18
Cyan	CAN7003	$18
Magenta	CAN7002	$18
Yellow	CAN7001	$18

$462 Save $196

Fuji Xerox DocuPrint C1110N Colour Laser

Networked colour laser

- 16ppm Mono & 12ppm Colour
- 9600 x 600 DPI
- 250 Sheet Paper Tray
- USB 2.0, Ethernet

WebCode: FXP1111

2K Black	FXP1114	$97
2K Cyan	FXP1115	$156
2K Magenta	FXP1116	$156
2K Yellow	FXP1117	$156

$579 Save $219

Fuji Xerox DocuPrint C1190 Colour Multifunction

Print / Copy / Scan / Fax

- Resolution 600 x 600 DPI
- 12ppm Colour / 16ppm Mono
- PC & MAC Compatible
- USB 2.0, Ethernet

WebCode: FXP1190

3K Black	FXP1196	$118
3K Cyan	FXP1194	$189
3K Magenta	FXP1195	$189
3K Yellow	FXP1196	$189

$1758 Save $655

Fuji Xerox Phaser 8560DN Colour Printer

Solid ink technology

- 30ppm Colour & Mono
- 600x600 DPI printing
- Built-in Duplexer
- USB 2.0, Ethernet

WebCode: FXP0562

3.4K Black	FXP0569	$200
3.4K Cyan	FXP0570	$188
3.4K Magenta	FXP0571	$188
3.4K Yellow	FXP0572	$188

BONUS $50 Home or Office Bundle

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Canon PIXMA iP100 Portable Inkjet Printer

Affordable document solution

- 20ppm Mono, 14ppm Colour
- 9600 x 2400 DPI
- USB, infrared

WebCode: CAN0732

Black PGI-35	CAN8104	$14
Colour CLI-36	CAN8105	$28

Linksys Wireless-N Networking Range

WRT160N Ultra RangePlus Wireless N Broadband Router
LNK6284 $132

WRT310N Wireless N Gigabit Router
LNK6286 $196

WUSB600N Ultra RangePlus Wireless-N USB Adapter
LNK6290 $99

Linksys WAG160N Wireless-N ADSL2+ Modem Router

The All-in-one ADSL2+ solution

High-speed ADSL2+ Modem gives you a fast, "Always On" connection to the Internet.

WebCode: LNK6285

NETGEAR DGN2000 Wireless-N ADSL2+ Modem Router

Get connected the NETGEAR way!

Surf, make Voip phone calls, play games and stream HD video simultaneously

WebCode: NTG8183

D-Link DIR-655 Xtreme N Gigabit Router

Make the move to Wireless-N

Connect the Xtreme N Gigabit Router to a cable or DSL modem and provide high-speed Internet access to multiple computers.

WebCode: DLK0064

Linksys AG300 - ADSL2 Gateway with 4-Port Switch

Low cost switch solution!

Blazing fast connection to the Internet, much faster and more convenient than a standard dial-up modem.

WebCode: LNK6244

NETGEAR ProSafe GS724T 24 Port Switch

Management at an Unmanaged Price

- 2 Fibre Ports
- Web-based Management
- ProSupport Extended Warranty Available

WebCode: NTG7158

HP ProCurve Switch 1800-8G series

Designed for affordability & minimal network configuration

Small and quiet for unobtrusive performance.

WebCode: HPE9029

Networking Gets a makeover!

D-Link

D-Link DIR-685 Xtreme N Storage Router

Wireless Internet & Storage for Home

WebCode: DLK6850

- Draft 802.11n speeds up to 14x faster than Wireless G
- Greater coverage for your entire home or office
- Large colour LCD photo frame
- Install up to 500GB of storage for multimedia sharing
- 4 Gigabit Ethernet ports
- Intelligent QoS Technology for superior VoIP and online gaming
- D-Link Green technology
- Integrated NAS & print server with SharePort technology

D-Link DSL-G604T Wireless-G ADSL2+ Modem Router

Value packed wireless modem

This router lets you quickly and easily connect to high-speed broadband Internet and share your ADSL line.

WebCode: DLK5109

Edimax Wireless-G Router + USB Adapter

A Wireless solution at a great price!

- Wireless 802.11b/g standards
- 1 WAN port and 4 LAN ports
- Supports WEP & WPA Encryption

WebCode: EDI1021

Edimax Gigabit Ethernet 2-Bay SATA NAS Server

File sharing via FTP or Network

- Build-in FTP and Samba server
- Supports USB mass storage
- Centralise your network storage
- Delivering faster transfer rates

WebCode: EDI1020

Cat 5e Patch Cables Blue

Snagless design

0.5m	COM2010	$4
1m	COM2011	$6
2m	COM2012	$10
5m	COM2013	$15
10m	COM2014	$25

Did you Know Know?

1TB = 333,300 photos
= 1,000 hours of video
= 250,000 MP3's

Seagate Portable USB Hard Drive

Store & exchange anywhere

- 5400 RPM performance
- USB powered
- Two year limited warranty

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320GB	SGA5001	$139
500GB	SGA5002	$185

Seagate Desktop USB Hard Drive

Large backup capacity

- 7200 RPM performance
- USB 2.0 connectivity
- Two year limited warranty

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1TB	SGA5101	$185
1.5TB	SGA5102	$268

NETGEAR RND2000 ReadyNAS Duo 500 GB

Keep all your Documents, Movies, and Pictures secure

Storage that can be shared with all your computers, media centres, and gaming consoles.

WebCode: NTG8133

NETGEAR ReadyNAS NV+ 4-Bay Gigabit Desktop Network Storage 1TB

Designed specifically for home office

WebCode: NTG7998

Now in five different colours

Verbatim 2.5" 320GB USB 2.0 Portable Hard Drives

Red	VBM9572
Blue	VBM9573
Pink	VBM9575
Silver	VBM7513
Green	VBM9574

D-Link DUB-H7 7 Port USB 2.0 Hub

Connect up to 7 devices to one USB Port

- Backward compatible to USB 1.1,1
- Diagnostic LEDs provide port status

WebCode: DLK1122

SanDisk Cruzer Micro U3

The market leading flash drive

The Cruzer Micro design is a small, smart and secure USB Flash Drive.

2GB	SAN0061	$15
4GB	SAN0062	$21
8GB	SAN0103	$37
16GB	SAN0164	$62

Kingston DataTraveler 150 USB Flash Drive

Big news in mobile storage

Budget conscious users can now break storage barriers, allowing them to easily store and move large files in a device no bigger than a pocketknife.

32GB	KIN0037	$118
64GB	KIN0038	$218

Sandisk Ultra Backup USB Flash Drive

Easy portable backup

The first USB flash drive with a one touch backup button

8GB	SAN0199	$48
16GB	SAN0200	$85
32GB	SAN0201	$149

Sandisk Memory Cards

Standard SD

4GB (SAN0115) $18
8GB (SAN0116) $33

Ultra II SD

4GB (SAN0098) $22
8GB (SAN0101) $40
16GB (SAN0151) $72

Ultra II Compact Flash (CF)

4GB (SAN0023) $36
8GB (SAN0037) $50

Memory Stick Pro Duo

4GB (SAN0053) $33
8GB (SAN0120) $60

Ultra II Memory Stick Pro Duo

4GB (SAN0066) $43
8GB (SAN0072) $78

Extreme III SD

4GB (SAN0125) $30
8GB (SAN0126) $63
16GB (SAN0179) $198

Extreme III Compact Flash

4GB (SAN0107) $49
8GB (SAN0108) $79
16GB (SAN0157) $121

Verbatim Storage Media

CD-R x 50 Inkjet	VBM5005	$17
CD-R x 50	VBM4961	$16
CD-R x 100 Inkjet	VBM5252	$36
CD-R x 100	VBM4554	$27
DVD-R x 25	VBM0580	$12
DVD-R x 50	VBM5101	$24
DVD-R x 50 Inkjet	VBM1973	$23
DVD-R x 100	VBM6049	$47
DVD-R x 100 Inkjet	VBM5153	$42
DVD+R x 25	VBM5033	$12
DVD+R x 50	VBM5037	$21
DVD+R x 50 Inkjet	VBM1974	$23
DVD+R x 100	VBM6050	$42
DVD+R x 100 Inkjet	VBM1995	$47
DVD+R DL 8.5Gb 1Pk	VBM4912	$4
DVD+R DL 8.5Gb 3Pk	VBM5014	$10
DVD+R DL 8.5Gb x 20	VBM4981	$52
BD-R 2x 25GB 5Pk	VBM4361	$68
BD-R 2x 25GB 10Pk	VBM6068	$138

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The software suite that helps people easily create great-looking documents, worksheets and presentations, as well as manage notes and information at home.

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- Microsoft Powerpoint
- Microsoft Word
- Microsoft OneNote

WebCode: MSA6101

Microsoft Office Small Business 2007

Tools to help at small businesses work more efficiently

Office Small Business 2007 is the complete, powerful and easy-to-use productivity and contact management suite.

- Microsoft Excel
- Microsoft Powerpoint
- Microsoft Publisher
- Microsoft Word
- Microsoft Outlook with Business Contact Manager

WebCode: MSA6105

Microsoft Office Suites

Create visually stunning documents, worksheets & presentations

Office Outlook Academic 2007	MSA6121	$84	SAVE $14
Small Business Upgrade 2007	MSA6106	$363	SAVE $86
Professional 2007	MSA6108	$758	SAVE $141

SmartDraw 2009

Create stunning artwork in Microsoft office with ease

Quickly create the business graphics you need to succeed, and is the perfect companion product to Microsoft Office.

WebCode: SMT0071

Crystal Reports 2008

Design interactive reports connect them to virtually any data source

- Leverage professional reporting
- Empower end users to explore reports with on-report sorting and parameters

WebCode: SCR2008

Dragon NaturallySpeaking

Voice Recognition, Speech-to-text software, perfect for dictation

Standard 10	NUA0093	$153	SAVE $46
Preferred 10	NUA0091	$259	SAVE $90
Preferred Wireless 10	NUA0105	$459	SAVE $140
Professional 10	NUA0097	$1,198	SAVE $201

Nuance OmniPage 17

Never retype or reformat a document ever again!

- Increased word accuracy
- Faster launch times
- One-click toolbar in Microsoft Office
- Asian language recognition

WebCode: NUA0112

ACT! by Sage 2009 v11

#1 Selling Contact Manager

Keep all your important relationship details for quick, organised access to the information you need.

WebCode: ACT0039

Nuance PDF Converter Pro 5

Create, convert & edit PDF's fast!

The complete PDF solution designed specifically for business users, delivers everything you need to create, convert, and edit PDF files.

WebCode: NUA0064

Adobe Acrobat 9 Pro

Protect documents with PDF

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WebCode - WIN: ALD9652
WebCode - MAC: ALD9651

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Protection for ALL Users!

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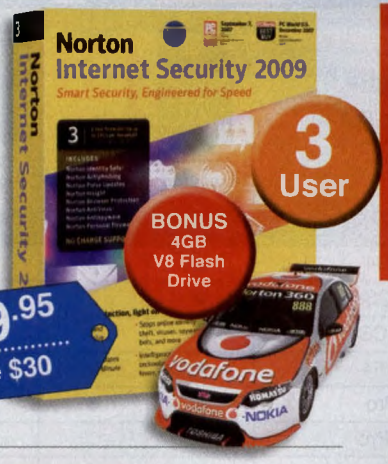
- Unique technology for faster, fewer scans
- Up-to-the-minute protection against identity theft, spyware, viruses, spam, bots, keyloggers and new threats
- Silent mode for games & movies
- Wireless network security
- Fully configurable

5 Users (SYM9957) **$126**
10 Users (SYM9958) **$209**



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The Ultimate Security Solution

Anti-Virus, Anti-Spyware, Anti-Rootkit, Anti-Spam, Firewall, LinkScanner and Identity Protection. Stops threats before they become a problem.

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- Real-time security while you surf, search and chat online
- Stops junk e-mail and prevents identity theft

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5 Users (AVG0007) **$145**
10 Users (AVG0008) **$255**

$78 Save $17

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Backup and recovery that is EASY to perform!

A complete data protection suite - backup your entire PC, data, applications and your Operating System.

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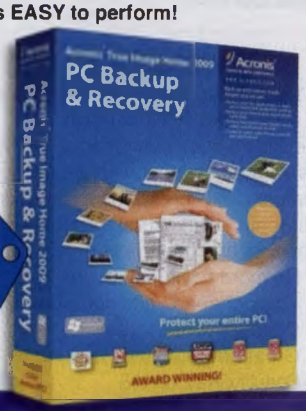
- Smart Scheduling
- Protect your archives with password based encryption



$65 Save $14

WebCode: MAN0155

$94 Save $14

Avira AntiVir 2009 Internet Security

Product of the Year in Independant "AV Comparitives" 2008 testing

- Winner of CNET Editor's Choice Award - April 2009
- Over 70 million customers worldwide.
- Protects against viruses, rootkits, phishing, spyware, and other highly infectious files.

1 User (AVI0106) $63 WebCode: AVI0109

AVG Anti-Virus Network Edition 8.0

Centrally controlled Anti-Virus protection

5 PC's	(AVG0011)	$199
10 PC's	(AVG0012)	$380
20 PC's	(AVG0013)	$660

$78 Save $21

Kaspersky Internet Security 2009

Proven Anti-Virus Protection

- Protects from all types of malware & spyware
- Scans files, email messages and Internet traffic

WebCode: KAS0004

$42 Save $27

Norton Utilities 14

Optimise your PC, for speed!

- Automatically finds and fixes common problems
- Accelerates startups
- Defrags disk for faster performance

WebCode: SYM9990

$45 Save $4

WinCleaner OneClick

All in one solution to cleaning your PC

- Removes unnecessary files and internet clutter
- Cleans and optimizes Windows Registry

WebCode: WIN0011

UNLEASH

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Design Premium Win - Student	ADS0025	$530
Design Premium Win - Academic	AEP0072	$950
Design Premium Win	ALD1207	$2,887
Design Standard Win - Student	ADS0028	$375
Design Standard Win - Academic	AEP0074	$709
Design Standard Win	ALD1209	$2,178
Web Premium Win - Student	ADS0033	$461
Web Premium Win - Academic	AEP0085	$849
Web Premium Win	ALD1215	$2,688
Web Standard Win - Student	ADS0035	$299
Web Standard Win - Academic	AEP0087	$575
Web Standard Win	ALD1217	$1,539
Production Premium Win - Student	ADS0031	$499
Production Premium Win - Academic	AEP0078	$930
Production Premium Win	ALD1213	$2,688
Master Collection Win - Student	ADS0024	$869
Master Collection Win - Academic	AEP0076	$1,568
Master Collection Win	ALD1211	$3,887

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Components	Design Premium	Design Standard	Web Premium	Web Standard	Production Premium	Master Collection
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Photoshop CS4 Extended	●		●		●	●
Photoshop CS4		●				
Illustrator CS4	●	●	●		●	●
Acrobat 9 Pro	●	●	●			●
Flash CS4 Pro	●		●	●	●	●
Dreamweaver CS4	●		●	●		●
Fireworks CS4	●		●	●		●
Contribute CS4			●	●		●
After Effects CS4					●	●
Premiere Pro CS4					●	●
Soundbooth CS4			●		●	●
OnLocation CS4					●	●
Encore CS4					●	●
Shared features services and applications						
Bridge CS4	●	●	●	●	●	●
Device Central CS4	●	●	●	●	●	●
Dynamic Link					●	●
Version Cue CS4	●	●	●	●		●

CorelDRAW Graphics Suite X4

New & improved Corel Graphics suites

CorelDRAW Graphics Suite X4 lets you tackle creative graphics and design projects with confidence.

- Precision tools
- Market-leading file compatibility
- High-quality content
- Create distinctive logos and signs
- Create striking marketing materials

$599 Save $230

WebCode: COR8968

$698 Save $101

Corel Painter 11

The most inventive digital painting software on the market.

Corel Painter 11, software that delivers the most advanced photo painting and natural media tools available today.

WebCode: COR8712

$149

*Student/Academic ID Card Required

Total Training CS4

Master your software with Video Training.

TT Indesign CS4	TOT0091
TT Illustrator CS4	TOT0090
TT Photoshop CS4	TOT0089
TT Dreamweaver CS4	TOT0088

$139 Save $60

Nero 9

Simply Create, Rip, Burn, Copy, Share, Backup, Play, and Enjoy

The next generation of the world's most trusted integrated digital media and home entertainment software suite.

WebCode: NER0043

$135 Save $54

Roxio Creator 2009

Easily protect what you can't replace

Delivers the industry's best & burning and copying tools for protecting your life stories, digital media and files.

WebCode: ROX5010

Sibelius 6

The fastest, smartest, and easiest way to write music

Sibelius 6 is a giant leap forward in notation software – with amazing new features and improvements for educators, students, composers, arrangers, copyists and musicians of all kinds.

- No more tidying up scores
- Track changes and compare versions
- Conduct your scores
- Great new sounds – in no time
- Beautiful Keyboard & Fretboard windows

$779 Save $16

WebCode: SIB0004

YOUR CREATIVITY

Adobe Photoshop / Premiere Elements & Lightroom 2

Adobe Photoshop Elements 7	ALD0404	$116*	SAVE $53
Adobe Premiere Elements 7	ALD0406	$116*	SAVE $53
Adobe Photoshop Elements 7 & Adobe Premiere Elements 7	ALD0402	$245	SAVE $40

Adobe Photoshop Lightroom 2 - Academic

Simplify photography from shoot to finish

- Enhance specific areas of a photo precisely adjust overall color, exposure, and tonal range.

WebCode: AEP9567

Corel Paint Shop Pro Photo X2 Ultimate

A complete photo-editing software solution

- Instantly fix common problems such as red eye, color & sharpness
- Add special effects to photos, text & projects with a few simple clicks

WebCode: COR9203

Pinnacle Studio 12

Not just video editing software

Pinnacle Studio offers everything you need to make home movies. Edit and polish your videos to your hearts content.

WebCode: PIN0184

Pinnacle Studio 12 Ultimate

A complete video-editing solution

Take advantage of the latest HD video editing technologies, including Blu-ray and AVCHD

Crossgrade from any other video editing program (PIN0201) **$169**

WebCode: PIN0183

Pinnacle MovieBox Plus - USB

Capture HD video & create beautiful movies

Combining power and simplicity, Pinnacle Studio MovieBox Plus unlocks the latest HD video technologies, including Blu-Ray and AVCHD. MovieBox Plus includes Pinnacle Montage theme-based editing which puts incredible creative power at your fingertips. Very easy to make a masterpeice.

WebCode: PIN0200

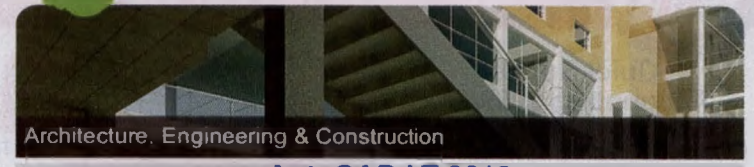
AutoCAD 2010

Take design further

Speed up documentation, share designs accurately, and explore ideas more intuitively in 3D. AutoCAD software provides the ultimate in power and flexibility, customizable for your specific needs.

Subscription	(AUT0233)	**$730**
Upgrade from 2009	(AUT0234)	**$950**
Upgrade from 2008	(AUT0235)	**$1,727**
Upgrade from 2007	(AUT0236)	**$2,870**

WebCode: AUT0231



AutoCAD LT 2010

Efficiency, power, and reliability. But now it's better than ever!

AutoCAD LT software delivers comprehensive 2D drafting and detailing tools for documenting ideas and designs. Create technical plans confidently with this comprehensive CAD drawing and drafting solution.

Autodesk Subscription

Autodesk subscription is a maintenance program that allows you access to the latest software releases & enhancements, along with support through specific e-courses and a support network to assist in smooth transitions of upgrades.

Upgrade	(AUT0224)	**$899**
Subscription	(AUT0225)	**$375**

WebCode: AUT0223

IMSI TurboCAD 15 Deluxe 2D/3D

Ready to read AutoCAD files out of the box

- Unlimited design options with hundreds of professional drafting and design tools
- Incredible file support for over 30 file formats including AutoCAD
- Video and interactive tutorials
- Photorealistic rendering & millions of symbols
- Perfect for architects, illustrators, contractors, builders, students, engineers and hobbyists

WebCode: IMS0043

MYOB Designed for Australians by Australians

MYOB Accounting Plus 18

Integrated payroll & time billing

Ideal if you ...

- Want to see how your business is performing
- Need to track the details of jobs & services
- Bill for your time

BONUS online training course between 18 May and 31 July 2009

WebCode: MYB0087

MYOB BusinessBasics

Ideal for sole traders

Manage all your basic business tasks from the one easy program, designed specifically for small or home-based Australian businesses.

WebCode: MYB0004

MYOB RetailReady

Point of sale in a box

Includes:

- MYOB Retail Basics
- Barcode Scanner
- Thermal Docket Printer
- Electronic Cash Drawer

WebCode: MYB0040

MYOB Accounting 18

A must for professional owner-operators

With MYOB Accounting's inventory management system you'll know what's in stock, what's on order and what's committed.

WebCode: MYB0086

MYOB Accounting Plus with Cover 18

Smarter way to manage your business

All the feature of accounting plus, but with added extra of 12 months of upgrades, updates, and Technical support.

WebCode: MYB0088

MYOB Premier 12

Smarter way to manage your multi-user business

Process foreign currency transactions, streamline payroll and analyse your business in greater detail.

WebCode: MYB0089

MYOB RetailManager v11

Advanced retail POS software

Our retail software is designed, developed and tested in close collaboration with existing retail businesses.

WebCode: MYB0099

PC USER BEST BUY

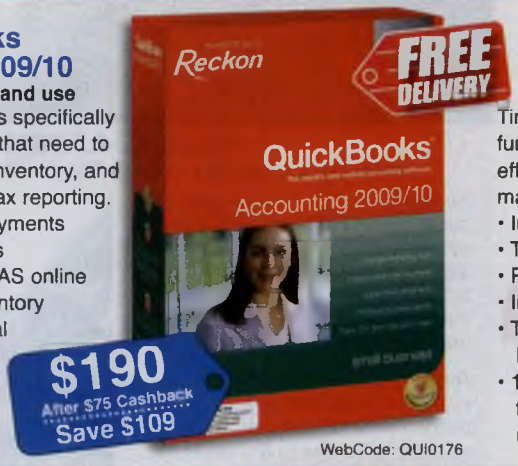
QuickBooks® - WINNER of PC USER BEST BUY 2 Years Running!

QuickBooks Accounting 2009/10

Easy to set-up, learn and use

QuickBooks Accounting is specifically designed for businesses that need to track their finances and inventory, and want to streamline their tax reporting.

- Process Credit Card payments
- Import Bank Statements
- Track GST and lodge BAS online
- Track and manage inventory
- 12 months free technical support & upgrades



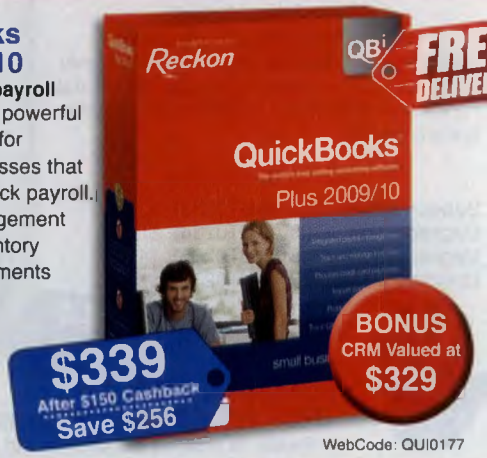
WebCode: QUI0176

QuickBooks Plus 2009/10

Track Inventory & payroll

Time saving features and powerful functionality a must have for efficiency- minded businesses that manage inventory and track payroll.

- Integrated payroll management
- Track and manage inventory
- Process credit card payments
- Import bank statements
- Track GST and lodge BAS online
- 12 months free technical support & upgrades



WebCode: QUI0177

QuickBooks EasyStart 2009/10

Designed for first time users

QuickBooks EasyStart is a simple accounting solution that provides practical tools for first time users.

WebCode: QUI0174

QuickBooks Pro 2009/10

Time billing & job costing built-in

Time billing & job costing built-in, prepare quotes & estimates. Includes 12 months free technical support & upgrades.

WebCode: QUI0178

QuickBooks Premier 2009/10

3 User access

Designed to meet specific industry needs, multi user capability. Includes 12 months free technical support & upgrades

WebCode: QUI0179

Reckon Retail Starter Kit 2009/10

All-in-one POS & Accounting Solution

Ideal if you are opening your store for the first time, or upgrading from a cash register. Includes 12 months free technical support & upgrades

WebCode: QUI0189

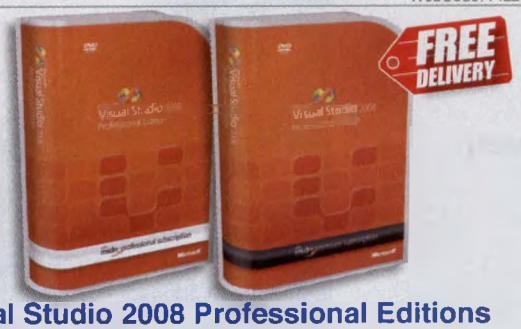
FileMaker Pro 10

Manage People, Projects, Assets, and More

Whether you need to manage client information, track project details, or produce inventory reports, FileMaker Pro 10 helps you get your important information organized in one place so it's instantly accessible

- **New!** Status Toolbar – Put commonly used features at your fingertips with the redesigned interface. Plus customise the toolbar with features you use the most.
- **New!** Script Triggers - Create and run scripts prompted by user actions for increased productivity

WebCode: FIL2500



Visual Studio 2008 Professional Editions

Professional development software

Professional - Full Package	MSA9889	$1,275
Professional - Subscription	MSA9904	$1,949
Professional - Premium Subscription	MSA9906	$4,015

CodeGear RAD Studio 2009 Professional

Windows development made easy

A complete solution for all developers building native Windows, .NET, Web and database applications. RAD Studio 2009 combines the highly acclaimed Delphi 2009 and C++Builder 2009 IDEs and the new Delphi Prism development environment which provides complete support for the .NET 3.5 Framework and LINQ into one offering.

Also available in Enterprise and Architect versions.

WebCode: BOR0299

Embarcadero Change Manager

Automate database change management

Embarcadero Change Manager offers DBAs and developers a powerful set of tools to simplify and automate database change management. Its schema compare and alter, data compare and synchronization, and configuration auditing capabilities report on database changes, roll out new releases, and pinpoint database performance problems.

12 Months Maintenance included.

WebCode: EMB0001

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Apple iMacs

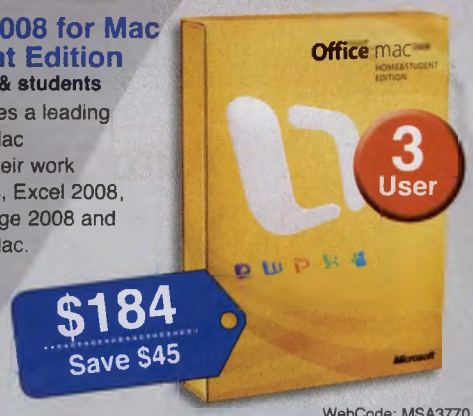
iMac - Intel C2D 2.66GHz 20"	APP0653	$1899
iMac - Intel C2D 2.66GHz 24"	APP0654	$2549
iMac - Intel C2D 3.06GHz 24"	APP0656	$3599

Microsoft Office 2008 for Mac Home & Student Edition

Perfect for families & students

Office 2008 for Mac features a leading suite of applications that Mac customers rely on to get their work completed with Word 2008, Excel 2008, PowerPoint 2008, Entourage 2008 and Microsoft Messenger for Mac.

Microsoft Office 2008 Standard - Mac (MSA3773) $485



WebCode: MSA3770

Roxio Toast 10 Titanium Pro

Leading Mac burning suite

Compress, convert and compile videos as well as capture audio from any source. Burn discs on the Mac with a host of improved features

WebCode: ROX5012

Bento 2

Personal Database by Filemaker

Now you can organise your important information and keep contacts, calendars, emails and events, files and photos-all in one place.

WebCode: FIL2098

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- Optimise your work environment with a customisable user interface and efficient organisation and navigation tools.

$1794 Save $158
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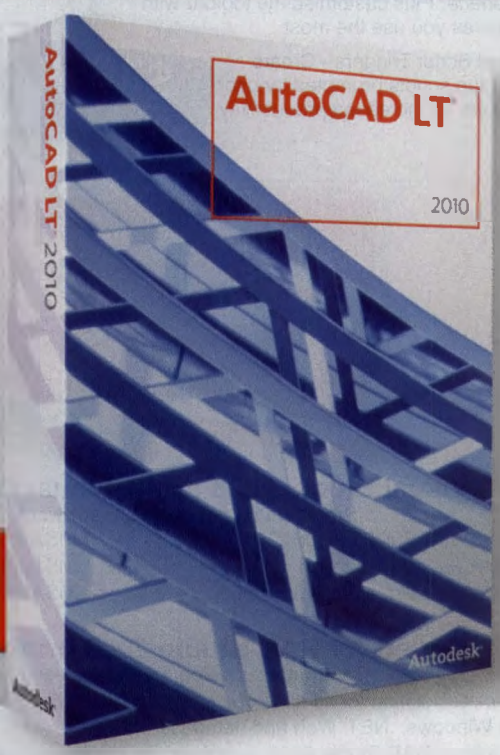

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- PDA size weighing only 720gm
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- VIA 1.2GHz CPU
- Up to 1GB DDR2 Memory

DreamBook Lite IL4 (I'd love 4)
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RRP Inc-GST

- Best Value 10.2" notebook
- Ultra Portable
- Intel Atom/VIA C7-M 1.6GHz Processor
- 10.2" Widescreen WXGA Display
- Up to 500GB SATA Hard Drive
- Up to 2GB DDR2 Memory
- In-built Camera & 802.11b/g Wireless

DreamBook Tablet TN12
From $1699
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- Great Value, Portable & Light notebook
- Intel Core 2 Duo Processor
- Up to 4GB DDR2 Memory
- 12.1" WXGA (1280x800) with touch panel
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- Free Fingerprint Reader

DreamBook Tough V10
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- Mini and Tough Tablet Fully Rugged
- Sunlight Readable 10-12" Touch Screen Display
- Intel Core 2 Duo Processor
- Waterproof Reversible Camera
- Integrated GPS and Wireless Access Capable
- Shock-mounted Removeable HDD
- Military standard 810F and IP54 compliance

DreamBook Tough A27
From $4999
RRP Inc-GST

- Tough Tablet PC for outdoor use
- Built to survive drops, rain, dust, salt air, and other harsh environments
- Encased in die-cast magnesium
- Drop/shock proofed under 3 feet
- 10.4" Touch Screen, Daylight readable optional
- Military standard 810F/IEC 529, NEMA

DreamBook UMPC Tough
From $2099
RRP Inc-GST

- Tough, Lightweight, Ultra-mobile PC
- 7" Wide Touch Screen LCD Display
- VIA C7M 1.2GHz Processor
- Built in Wireless and Bluetooth
- Ready for 3G CDMA wireless broadband, GPS navigation and Digital TV
- Military standard IP53

DreamBook Tablet T10
From $3999
RRP Inc-GST

- Rugged Tablet, 10" Splash Proof Touch Screen
- Slim, light weight, fanless design with grip
- Long battery life up to 4.5 hours
- Integratable RFID Reader, Barcode Scanner, and Fingerprint Reader
- Smart display: Auto-orientation & brightness
- Meets IP45 standard

DreamVision F10 LCD Green PC
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RRP Inc-GST

- 15.4"/17" Widescreen Display (Touch optional)
- Up to 2.0GHz Processor
- 1GB Memory, Integrated Graphics
- Up to 320GB SATA Hard Drive
- DVD-/+RW Optical Drive
- Ready for Windows XP/Vista
- Consumes under 65watts power

DreamVision LCD PC H40
From $999
RRP Inc-GST

- Intel Core 2 Duo Processor
- 17" WXGA LCD Display (Touch screen optional)
- Up to 4GB DDR2 Memory
- Up to 1TB (1,000GB) SATA Hard Drive
- Built-in Card Reader, DVD-RW, Sound
- Optional Touch Screen, 802.11b/g Wireless, Bluetooth

DreamVision L390 LCD PC
From $1499
RRP Inc-GST

- Slim and stylish space saving design
- Intel Centrino 2 Processor
- 19" Widescreen WXGA Touch Screen Display
- Up to 4GB DDR2 Memory
- Up to 500GB SATA Hard Drive
- Optional Touch Screen with Polarizer and wall mounting kit

DreamVision Tablet T1
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RRP Inc-GST

- Slim Light Tablet PC weighing only 1.18Kgs!
- Intel Atom N270 1.6GHz Processor
- 10.2" XGA TFT(1024*600) Touch Screen Display
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